Center for
Higher Education
Policy Studies

Implementing the Strategy for financial reform of higher education in Mozambique (EFES)

CHEPS WORKING PAPER 01/2018

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List of Abbreviations

EFES:	Higher Education Financing Strategy (Estratégia financeira de Ensino Superior)
COM:	Council of Ministers
CHEPS:	Center for Higher Education Policy Studies (University of Twente - NL)
COHERE:	Consolidation of higher education reform Programme
MCTESTP:	Ministry of Science & Technology, Higher Education, and technical and vocational Training
MEF:	Ministry of Economy and Finance

DNES:	National Directorate of Higher Education (Direcção Nacional de Ensino Superior)
IBE:	Institute for Student Financing (Instituto de Bolsas de estudo)
BF:	Base Fund
IF:	Institutional Fund
SF:	Student Fund
ECI:	Eligibility Index

Acknowledgements

This report describes the results of more than 15 years of cooperation between the Government of Mozambique, the Government of the Netherlands (NUFFIC) the Mozambican Higher Education Institutions and all relevant stakeholders in designing and implementing the reform of higher education financing. During that period, the regulatory authority for higher education changed hands between four different Ministries, and the Higher education institutional landscape changed substantially with the creation of many public and private institutions in response to the rapidly growing demand. So many people have been involved that I refrain from mentioning names explicitly and I hope to do justice to everyone involved by describing in broad institutional terms the many contributions.

The sustained efforts could not have taken place without the solid political stewardship of the Minister of the Ministry of Higher Education, Science & Technology (MESCT 2000-2004), the Minister of the Ministry of Education and Culture (MEC 2005-2009), The Minister and Vice Minister of Ministry of Education (MINED 2010-2014), and the Minister and Vice Minister of the Ministry of Science & Technology, Higher Education, and Technical and Vocational Training (MCTESTP 2015 to date) respectively. Also at this level, it is important to mention the members of CNES and CES who have continued their support for the process over all these years.

In 2014, the members of the EFES Steering Committee - including representatives of the Ministries of Education, Planning and Finance, and from 2015 onwards, the MESCT and Ministry of Economy and Finance (MEF), IBE, CNAQ, the National Bank, UEM, UP, and ISPG - coordinated and steered the effort from one government mandate to the next while fleshing out the details of the EFES design in terms of incentives, modalities and formats.

While keeping EFES high on the political agenda, the National Directors of DICES (2005-2010) and DNES (2015 to date) and their teams, have sustained these efforts at the operational level with passion and commitment even when weathering difficult political and financial environments. From 2016 the EFES Task Force members, comprising the MESCT National Directors of Higher Education, Finance and Administration, Planning, and ITC together with representatives of MEF consolidated the work of the EFES Steering Committee by organising simulations involving representatives of the Academic Registry

and Finance and Administration of the 12 higher education institutions taking part in the reforms.

Through the HEST programme team, the World Bank has provided unwavering support to EFES process with resources and commitment while showing great flexibility at short notice, in order to accommodate various major EFES related events.

Through NUFFIC, the Government of the Netherlands has with keen interest supported the development and implementation of EFES under the CHESS and COHERE projects managed by CHEPS. Indeed, without the expertise, patience and commitment of CHEPS managers, experts and support staff, it would not have been possible for me to bring together the political, managerial and technical skills that were required to underpin the EFES process.

Personally, I feel honoured and privileged to have been able to accompany these efforts by bringing stakeholders together and structuring, planning and facilitating the meetings and processes required to build common perspectives and to enable the implementation of the EFES model accordingly.

As the debt crisis lead to the sudden suspension of EFES, renewed efforts will still be needed to implement the strategy, and it is my hope that this report will provide the basis for doing so successfully as soon as the political and economic conditions allow.

Bart Fonteyne

Abstract

This report describes the results of more than fifteen years of cooperation between the Government of Mozambique, the Government of the Netherlands, the Mozambican higher education institutions and the relevant stakeholders in designing and implementing reforms in the financing of higher education in Mozambique. Through the support of NUFFIC, the Dutch organisation for internationalisation in education, many collaborative projects – all of them managed by CHEPS – were undertaken to develop and implement a revised financing framework for the rapidly growing Mozambican higher education system – a system confronted by many challenges in terms of access, quality and efficiency.

This report includes: (1) an historical overview of the various events that have shaped the financing situation from the year 2000 onwards; (2) the rationale for the financial reforms, (3) the design of a revised policy framework, together with a novel approach for the monitoring and evaluation of the policy mix; (4) the intense consultation processes and simulations undertaken during the 2011-2017 implementation phase, (5) a detailed description of the design of each of the three funding streams included in the revised funding framework, together with a discussion of the various trade-offs implied by the framework. In the final chapter, the report provides conclusions and recommendations on how the implementation of the financial reform can be continued successfully.

Keywords: Mozambique; higher education finance; cost sharing; funding formulas; policy evaluation

Executive summary

Objective of this report

This report has the objective to provide the institutional memory of more than 15 years of coordinated efforts between the Mozambican government, the World Bank, and NUFFIC in designing and implementing the financial reform of higher education in Mozambique. It also has the aim to provide a basis for mobilising further support to these efforts, and a starting point for continuing the implementation as soon as political conditions allow.

Structure of the report

For ease of reference the report provides access to its contents by providing (1) an overall historical timeline summarizing the significant events in each of the four government mandates during which the works have steadily continued; (2) a review of the rationale for the reform, (3) an overall design of EFES placing it within a framework of international research on higher education funding mechanisms, and presenting the dynamics of the EFES policy mix together with an example for a policy analysis monitoring and evaluation model (4) a review of the processes that have taken place and the consultation mechanisms that have been used in the 2011-2017 implementation phase, (5) a detailed description of the design of each of the three funding streams that make up EFES, together with a review of the different trade-offs and decisions that were made in fleshing out the deeper designs; the new processes and additional modalities that have been developed to enable implementation of EFES; and the risks and opportunities they pose.

In the final chapter, the report provides conclusions and recommendations on how the implementation of EFES can be continued successfully, and puts forward a number of issues that need to be resolved in order to do so.

Short summary of the contents

The financial reform of higher education has been on the political agenda in Mozambique from 2000 onwards, spanning almost four Government mandates. During this time, the development of the new strategy for financing higher education (EFES) has evolved from a vision to a detailed design of two direct funding streams and one indirect funding stream with specific funding mechanisms, implementation processes and modalities for each. In

doing so, the Mozambican Government has enjoyed strong support from the World Bank and NUFFIC.

With the benefit of hindsight, Mozambique has stayed the course with pushing forward EFES. Politically the process has seen its ups and downs as the regulatory authority overseeing higher education has seen many structural changes during which its status changed levels from ministerial (2000-2004) to directorate (2005-2009) to vice-ministerial (2010-2014), and back to ministerial level (2015-2019). But even during times of diminished political clout and many changes at the helm of the regulating authority, it succeeded in completing the designs and building support for EFES with the institutions. As political clout started to grow, again in 2010-2014 these designs were adopted by the Council of Ministers and were brought forward for further testing and fleshing out for implementation. Higher education is now in the portfolio of the Ministry for science and technology, higher education, and technical and vocational education (MCTESTP), and in the second year of his mandate the Minister took a keen interest in implementing EFES which culminated in strong political momentum until the 'hidden debt' crisis broke in April 2016, right at the moment when the Base Fund was on the verge of being rolled out. As the Ministry of Economy and Finance (MEF) was not able to go through with implementation of the new budgetary process to enable implementation of the Base Fund, the MCTESTP had to hold back, and higher education funding reverted to the current input based system.

Nevertheless, the rationale for EFES is as relevant as ever. Indeed, where resources come from, to whom they flow, and based on which mechanism they are allocated has a fundamental impact on how stakeholders behave. This in turn has significant impact on what the outcomes are in terms of quality, efficiency, and relevance of the system; on how equitable access to the system is; and on the degree to which governance of the system can be effective and aligned with national policy. There is consensus in the higher education system that the current model is not sustainable, not equitable, and not aligned to the needs of the country. If Mozambique is to capitalize on its demographic window of opportunity and on the increasing flow of external investment, new ways to finance higher education will provide part of the solution for developing Mozambican human capital, its economy, and the wellbeing of its society.

While EFES was stopped in its tracks at the eve of its implementation, a lot of progress was made in the run up to implementation with fleshing out and testing EFES with stakeholders by running pilots in the Mozambican context to further refine the design of the mechanisms related to each funding stream.

The Base Fund formula is presented in its most advanced form in this report. As the major direct funding stream of EFES, it provides the basis for closing a major accountability gap by ensuring that institutions propose budget proposals to MCTESTP instead of directly to MEF, and that they do so by formulating their proposals in terms of results through student based, performance based, and operations based formats. The objective is to achieve more efficient economic use of public funding and more qualitative and relevant programming by institutions whilst achieving better student progression and graduation rates. On the eve of implementation, some new questions were raised. These have also been presented together with potential solutions or remedies that can be incorporated in the model as soon as political conditions allow for re-launching implementation.

The Institutional Fund is the second direct funding stream aiming at supporting institutions in designing and implementing innovative management, administrative and academic capacity building projects in support of EFES and of wider national policy objectives for higher education. The Institutional Fund is also aimed at boosting research capacity and outcomes in institutions. Detailed designs for the processes and modalities of this project driven funding stream will be informed by long and successful experience of implementing the World Bank financed Quality and Innovation Fund (QIF) and Innovation and development fund (FDI) which were both aimed at strengthening institutional capacity. The main pending issue that is being resolved before fleshing out these detailed designs is to incorporate the Institutional Fund under the institutional umbrella of the Research Fund under responsibility of the MCTESTP. Both the Base Fund and the Institutional Fund have great potential in providing donors with transparent mechanisms for channelling their support to the supply side of the Mozambican higher education system

The Student Fund allocates state funding indirectly to institutions following student choice, and generates additional private funding through an eligibility formula aimed at fully funding disadvantaged students through state funds, while progressively requiring cost participation from those students that can afford to contribute. The objective is to

achieve more efficient socioeconomic targeting of state funding, increase the inflow of private funding to the sector as a whole, and ease the strain on public resources in financing the expansion of access. As this funding stream is to be institutionalised under the institute for scholarship funding (IBE), intensive support was mobilised by NUFFIC to incorporate the ECI in a software application for stratifying applicants according to their socioeconomic status. Support was also mobilised for designing the associated processes and modalities, and for running pilots to test the robustness of the software with the embedded ECI formula. In the process, the aim was to build a socioeconomic picture of the student population in order to calibrate the ECI stratification of the student population. After testing with a small-scale pilot, IBE launched a nation-wide dry run with all 12th year students intending to pursue higher education. The results of the dry run were mixed and many questions remain to be resolved; especially how to overcome resistance to fiscal transparency and to registering for NUIT by applicants. In addition, the support to enabling online applications everywhere in the country needs to be outlined in more detail, and overall more implementation capacity together with more meticulous preparations by IBE are also required. Provided that these initial problems will be resolved, the Student Fund provides a transparent vehicle for raising and allocating donor support towards the demand side, in order to enhance equitable access and sustainable expansion of access in the Mozambican Higher education system.

Given that the rationale for EFES still stands strong, and that the EFES direct and indirect funding mechanisms provide important incentive instruments for steering the higher education system; the pursuit of its development remains crucial. While the implementation of each of the EFES funding streams present challenges of their own that will have to be addressed step by step; the relative proportions of the combined EFES funding streams imply an opportunity for reaching a balanced optimum policy mix of incentives to achieve the overall higher education policy outcomes.

In order to gauge the effects of EFES we presented an example framework for policy analysis, monitoring and evaluation that combines policy outcomes with risk for EFES. This model needs an update in line with the progress that has now been made with EFES and the developments of higher education governance in general. Nevertheless it provides a way to help decision makers to come to grips with the complex set of trade-offs in a coherent and consistent way.

Conclusions and recommendations

Conclusions

Like many reforms, EFES presents policy makers and stakeholders with difficult trade-offs and political risk. However, the status quo in response to the dynamics of a developing society and an emerging economy with a growing middle class expressing strong demand for high quality higher education also presents policy makers with political risk. So, to reform or not to reform is no longer the question. Mozambique can seize the momentum of its demographic window of opportunity or hold on to the status quo and see this opportunity turn into a source of unrest as the growing ranks of young people in the productive age brackets will feel that ineffective government and lack of opportunity squanders their talents and their chances for a better life.

From being part of the problem today, higher education can turn into part of the solution tomorrow. At the heart of the system lies an important set of incentives that needs redesigning to support change for the better. Only setting new policy objectives without changing these incentives has proven to be ineffective.

Changing the incentives implies profound systemic redesigning, and requires also a clear set of policy objectives to give direction to the redesign. The interdependency between policy objectives puts policy makers and stakeholders before complex trade-offs that are not always fully reconcilable. In addition, it is important to avoid that short-term fixes facilitating implementation in the short term, compromise the policy outcomes in the longer term.

The experiences with implementing EFES have been encouraging and disheartening alike. Disheartening because many changes at political and implementation levels have often led to loss of momentum, inconsistencies, and loss of institutional memory and capacity. Encouraging because despite these problems, and despite the competing demands made on the attention of policy makers by the multitude of challenges Mozambique faces in all sectors, EFES has evolved from a vision into a model with three funding streams, each incorporating a set of incentives that generate synergies between the supply and demand sides. In the process, stakeholder and government representatives have engaged deeply in resolving the issues and challenges related to the fleshing out the designs, agreeing on implementation modalities and processes, and simulating them in the Mozambican context.

Recommendations

Overall, continuity, political commitment and clear and sophisticated communication strategies are paramount in leading deep structural change projects such as EFES. Political risk is shaped by perceptions of fairness and opportunity for all in the design of the future, but also by consistency and competency in implementation. Implementation risk depends on competent management of the political imperative, negotiating the practical hurdles that need to be overcome, and ensuring consistency between short-term solutions and long term-objectives.

It is therefore required that a dedicated and competent team manages EFES, preferably from within a regulatory authority that has sufficient continuity from one mandate to the next, and which has a dedicated budget for building capacity for EFES implementation and for mobilising and managing external expertise.

For the implementation of EFES, the regulatory agency needs continuous political support from the Council of Ministers, from the institutions, and from the wider public. This requires a sophisticated interplay in terms of communication and consultation mechanisms, and close cooperation between legislative and executive powers.

While in essence they are complementary, the three funding streams of EFES and the incentives and policy objectives they each harbour, also require balancing in order to obtain an optimum policy mix. Notable in this are the significant trade-offs between the direct supply-side funding streams and the indirect demand-side funding stream. For instance, increasing the proportion of the Student Fund strengthens equitable cost sharing and the expansion of access, while the reduction of the Base Fund proportion weakens the student based, performance based and operations based incentives. While this optimum will be dynamic and will need to be adjusted in function of the dynamic realities of Mozambique, it must also be sufficiently stable in order to preserve predictability for the institutions, the academia, the students and the wider public.

Within each funding stream, there is also a need for calibration of the incentives and the allocation mechanisms driven by them. On the supply side, the availability of reliable data is crucial for the functioning of EFES, as data will justify the triggering of certain funding levels to the institutions. On the demand side data is crucial for establishing cost-sharing levels, to ensure equity and finance the expansion of access. Data must therefore be available in its most disaggregated form to allow for policy outcome analysis, but also for

verification by data audits. Financial controls will have to include such data audits in addition to the standard financial audits. Sanctions need to be devised and strictly implemented in case of fraud.

EFES emphasises accountability and the need for linking funding with performance and results. In order to make this possible, it is required to reduce the rigidity of the current input based financing regime. In return for funding by results, government must allow the institutions sufficient flexibility in how they allocate their resources. The Base Fund has developed performance based budget formats to guide the negotiations between MCTESTP and the institutions, but institutions still need to present their budgets into the input based SISTAFE format in order to obtain funding from MEF. This limits the flexibility of resource allocation for obtaining the best results, and also limits accountability to MEF to financial budget execution only. In the medium to long term, solutions must be developed to facilitate the shift away from SISTAFE input financing formats towards performance based ones, possibly by changing the statute of the public institutions and its financing relationship with the government by means of 3 year contract programmes. This in turn would also facilitate changing the statute of academic staff away from the bureaucratic public service statute towards performance and merit based remuneration systems.

The role of CNAQ is key to ensuring that EFES incentives are not implemented to the detriment of quality. This calls for a close alignment between Quality Assurance and EFES by aligning performance criteria, and creating interactivity between EFES and the Quality Assurance results.

Pending issues

The implementation of the Base Fund was aborted at the last minute due to the extreme consequences of the 'hidden debt' crisis. However disappointing this has been, it now presents us with the opportunity to further refine it and resolve some issues until political conditions allow for launching it.

For the Base Fund the following issues need now addressing:

1. The establishment of a dedicated team within MCTESTP with external technical support to launch and manage the preparations and roll out of the Base Fund

2. The establishment of a reliable (cloud-based) database (with data reference manual) for higher education containing all required data disaggregated at individual student level.
3. A full simulation with all 12 selected institutions to calibrate and fine tune the Base Fund formula and base rates
4. Development of a roll out strategy and implementation plan

If it can be done, it would be preferable to launch the Institutional Fund simultaneously with the Base Fund rollout.

In order to do so, the following issues need addressing:

1. Institutionalise the Institutional Fund under the MCTESTP Research Fund (Fundo de Investigação)
2. A review of the experiences of the QIF and FDI and use best practices for the establishment of an outline for the Institutional Fund
3. Define the procedures and modalities for each of the Institutional fund financing windows
4. Establish budget cycles and amounts for each window
5. Development of a roll out strategy and implementation plan

The Student Fund carries most political risk, and has proven to still harbour many challenges before it can be successfully implemented. Most probably, the roll out of the Student Fund will require more time, and given the political risk in engaging with the wider public on cost sharing, timing of the roll out will also need to take into account the broader political calendar in Mozambique.

The following issues need to be addressed

1. Review the capacity of IBE, and establish the needs for strengthening in view of the challenges related to rolling out the Student Fund. Decide on the need for external assistance.
2. Peer reviewing the ECI formula to ensure that it correctly reflects socioeconomic strata

3. Devise a strategy and implementation plan for ensuring nation-wide connectivity for online applications
4. Develop a political communication strategy to the wider public ensuring adoption of the transparency principle and willingness to provide fiscal information for means testing
5. Launch a national dry run with 12th year school students to build a picture of the socioeconomic profile of the potential higher education student population, and calibrate the ECI quintiles
6. Decide on the parameters (cost sharing base, and cost sharing scales)
7. Launch the Student Fund.

Background and short history of EFES

2000 - 2004

With support of World Bank and NUFFIC¹ providing funding and technical assistance through the Center for Higher education Policy Studies (CHEPS) from the University of Twente in the Netherlands, the Ministry of Higher Education Science and Technology (MESCT) 2000-2004, developed the first higher education strategy 2000-2010. With this strategy, the financial reform of higher education was put on the political agenda².

The Ministry also established the Council of higher education (CES)³ and the National Council of Higher Education (CNES)⁴, as the two major stakeholder platforms to steer higher education policy and development in Mozambique. During that period, the Ministry also established the World Bank funded Quality and innovation Fund, aimed at selecting and funding projects proposed by higher education Institutions and researchers on a competitive basis.

2005 - 2009

After the 2004 elections, the MESCT changed into the Ministry for Science and Technology while Higher Education became the responsibility of the new Ministry of Education and Culture. During this 2005-2009 government mandate, the Directorate for the coordination of higher education (DICES) was established to continue the implementation of the higher education strategy. With NUFFIC/CHEPS and World Bank support DICES developed a policy analysis⁵, a cost study⁶, and the operational plan 2007-2012⁷, which outlined the rationale and provided a broad framework for the higher education financial reform. The operational plan was adopted by the Council of higher education (CES) as well

¹ NUFFIC-NPT-CHESS programme

² Reform of Mozambican higher education system through new funding mechanisms – Arlindo Chilundo and Jasmin Beverwijk and a unit cost study at UEM by Jane Wellman & Jamie Merisotis - the Institute for Higher Education Policy, and Mouzinho Mario, Mauricio Malate, & Fernando Lichucha - Eduardo Mondlane University, 2003

³ The members of the CES are all rectors of tertiary institutions both public and private in Mozambique. It has an advisory function to the Minister

⁴ The CNES consists of the members of CES plus a broader group of stakeholders such as the national student association, the teacher association, professional associations, civil society organisations, the chamber of commerce and other representatives of Mozambican society and economy. The CNES approves proposals by the Ministry to be presented to the Council of Ministers.

⁵ https://www.academia.edu/3418581/Policy_Analysis_and_Strategic_Planning_in_the_Higher_education_Sector_of_Mozambique_June_2005

⁶ An Analysis of Unit Costs at Mozambique's Eduardo Mondlane University, 2003-200 by Peter R. Mook Revised, May 6, 2007

⁷ https://www.academia.edu/35067953/Operational_plan_for_the_implementation_of_the_second_phase_of_the_strategic_plan_for_higher_education_in_Mozambique

as by the National Council of Higher Education (CNES). During the same period, more studies were conducted to further flesh out a full strategy for the reform.

However, due to the relative weak position of DICES in the overall higher education landscape, three consecutive changes of director, and the limited political attention the sector could be given due to the large ministerial portfolio, the reforms did not reach the Council of Ministers in the form of a full-fledged strategy for approval.

While World Bank support continued throughout with the HEST programme, NUFFIC temporarily suspended its support before the end of the mandate for lack of sufficient progress.

2010 - 2014

After the election of 2009 for the government mandate 2010-2014, higher education remained with the Ministry of Education. However, in order to provide more political initiative and oversight the Minister of Education appointed the Vice Minister for higher education, whom in turn nominated a new Director for DICES.

With renewed confidence NUFFIC resumed its support to higher education and by early 2011 CHEPS launched the COHERE programme. The main objectives of the COHERE programme aimed at implementing the Higher Education Financing strategy (EFES), building overall capacity in DICES, and implementing a higher Education Management information System (HEMIS). DICES coordinated the development of a new Higher Education strategy 2010-2020 and with support from CHEPS, the Vice Minister and the DICES Director in outlined the Strategy for the financial reform of higher education (EFES) with three funding streams; the Base Fund, the Institutional Fund, and the Student Fund.

Upon presentation to the Council of Ministers in 2012, the Ministers requested a national consultation round with all stakeholders before signing off. This consultation was successfully carried out throughout the country and by July 2013, the Council of Ministers (CoM) formally approved and adopted the EFES document. Meanwhile the DICES director had to step down for health reasons, triggering the fifth change of director in six years.

In follow up of the Council of Ministers approval, the Vice Minister established the EFES Steering Committee with himself as chair and included representatives of the public universities from UEM, UP, and ISPG, the Ministry of Finance, the Ministry of Plan, the

'Institute of scholarships (IBE), and the National Investment Bank. According to its terms of reference, the EFES steering committee received the mandate to

1. Plan, coordinate and oversee the implementation of the Higher Education Financial Reform Strategy
2. Ensure consistency and coherence within and between the three EFES funding streams (Base fund, Institutional Fund, and Student fund)
3. Anticipate, assess and mitigate political and operational risks while implementing the reforms
4. Mobilise resources to support the reforms

NUFFIC financed the international short-term consultant to guide the work through CHEPS, and after several delays in finding the adequate candidate, World Bank provided a resident consultant to support the logistics and documents for the EFES Steering Committee.

In December 2014, by the time a new government was about to be formed for the mandate of 2015-2019, and more changes were in the air for higher education; the EFES Steering Committee conducted its first three-day meeting, outlining the major issues to be resolved for each of the three EFES funding streams, and laying the basis of a roadmap towards the implementation for each.

2015 - 2019

The changes for higher education were significant. With the new government mandate, higher education was extracted from the Ministry of Education and was incorporated in the new Ministry of Science and Technology, Higher Education, and Technical and Vocational Training (MCTESTP). While this new MCTESP was established in the course of 2015, the EFES steering committee was chaired by the MCTESTP Vice Minister and conducted 5 more two-day meetings in March, April, June, September and November 2015.

With CHEPS support, the Steering Committee continued to work through the various issues for each funding stream.

For the Base fund it launched a simulation of the Formula, outlined a new Budgeting cycle and process between the public institutions, the MCTESTP, and the Ministry of Economy

and Finance (MEF). It also outlined the first formats and further fleshed out design issues and modalities between the various stakeholders.

For the Institutional fund it decided to build on the experiences of the World Bank financed competitive funds (QIF & FDI), while looking for a solution to institutionalise it under the umbrella of the new Ministry.

The EFES Steering Committee also made a first evaluation of the results achieved by IBE in developing and piloting a database as well as a software application and procedures for implementing cost sharing under the Student Fund.

Based on the achieved results and the understanding that EFES would be introduced in phases, the EFES steering committee recommended to first implement the Base Fund, as it represented the major share of the EFES and was most advanced in its development. Meanwhile the MCTESTP would sort out the institutionalisation of the Institutional Fund, while also the design, process and communication issues would further be resolved for the Student Fund.

By early 2016, the Ministry of Economy and Finance (MEF) sent out a communiqué to all public higher education institutions with the instruction that their budget requests were to be presented to MCTESTP for approval before they would be adopted by MEF. This opened the door to MCTESTP for aligning accountabilities of public institutions to higher education policy through the introduction of EFES. By that time, also, a new (6th) Director was appointed and DICES became the National Directorate for higher education (DNES) within the MCTESTP.

On recommendation from the CHEPS consultant, the Minister set up a Task Force with the Terms of Reference to complement and continue the work of the EFES steering committee and to firmly embed the implementation of EFES within the MCTESTP. The aim was to ensure the capacity and the means within the MCTESTP and to further work out the new processes and modalities of EFES across Directorates and departments within MCTESTP, between MCTESTP and the Public institutions of Higher Education, and also with the Ministry of Economy and Finance (MEF).

Based on a detailed implementation plan⁸ approved by the Minister, the taskforce met in March, April, May, and June 2016 to launch the implementation Base Fund part of EFES

⁸ See Annex 1: The detailed implementation plan for EFES

during the budgeting cycle March – September 2016 for implementation in the academic year of 2017-2018.

Following two simulation sessions with the Public institutions, the CHEPS consultants and the taskforce refined the formula variables and parameters and designed the new budgeting cycle of the Base Fund together with the formats for data collection, performance budgeting, and strategic planning as the basis for the public institutions to present their funding requests.

As the MCTESTP was waiting to receive, the overall budget limits for higher education from the MEF by May 31 in order to roll out the Base Fund stage of EFES, the Mozambican ‘hidden debt’ crisis broke in April 2016. This generated a chain of events, which suspended the state budgeting cycle until September 2016. Only at this very late stage, the MEF informed the public higher education institutions that because of time pressure and severe budget cuts across the public sector, they should present their budgets directly to MEF, which in effect meant abandoning the implementation of EFES.

As NUFFIC had already extended its support under the COHERE programme twice because of initial delays with the approval of EFES at the Council of Ministers in 2013 and slower progress of implementation than expected thereafter, there was no more room for extending the programme beyond July 2017. This in effect means that the MCTESTP now needs to find new funding for technical assistance to the implementation of EFES as soon as conditions allow.

The taskforce met again with the CHEPS consultant in May 2017 to take stock of the situation and bring to the fore the essential elements for this report with the aim to consolidate the institutional memory with regard to EFES.

This report reflects the current state of progress with EFES and provides a detailed description of the model based on the cumulative participative processes of developing EFES by the EFES Steering Committee and EFES Taskforce with intensive technical assistance from CHEPS financed by NUFFIC, and the extensive financial support provided by the World Bank, to the various meetings and seminars associated with these efforts.

Overview of the EFES rationale

Demand and expansion

Between 1992 and 2014, the higher education system has evolved from 3 to 48 institutions, and developed from an entirely public system to a mixed system with public and private providers. The system was almost completely concentrated in Maputo while now it is present in all provinces. Starting with just about 3,750 students in 1990, higher education enrolment has grown to 13,600 students in 2000 and to 123,800 in 2012, of which 34 percent are in private institutions.

Mozambican demand for higher education is largely outpacing GDP growth. The growth of public funding is constrained and expenditure per student is eroding at ever-faster rate, undermining the ability of public higher education Institutions (HEI) to provide quality.

While Mozambique is catching up with other countries in the region in terms of number of graduates per thousand people, the mismatch of available skill sets with those in demand by the labour market is not being resolved.

The state has responded with the creation of more public institutions -such as polytechnics- in the areas that provide a better alignment with the labour market needs and long-term development needs of the country. Given the limits of the public institutions in keeping up with demand the proportion of students studying in private institutions is growing, gradually shifting part of the burden to family incomes. Private institutions however, tend to provide the more lucrative low cost programmes, adding more graduates in areas that are already oversupplied.

Financing Higher education

The current financing mechanism in Mozambique is still largely based on direct funding of Public HEI by the state budget with minimal cost sharing on the part of the student. Public institutions use entry exams to balance limited supply of public higher education with massive demand for these quasi-free public programmes. This results in equity and access problems for a large part of the population as students with better socioeconomic and educational backgrounds get disproportionate access at the expense of the students from less fortunate socioeconomic and educational backgrounds.

There is consensus in the higher education system that the current model is not sustainable, not equitable, and not aligned to the needs of the country. If Mozambique is

to capitalize on its demographic window of opportunity and on the increasing flow of external investment, new ways to adequately finance higher education must provide part of the solution for developing Mozambican human capital, its economy, and the wellbeing of its society.

The high degree of autonomy granted to the public institutions coupled with a separation between oversight from the MCTESTP and state funding by the Ministry of Finance and Economy leaves an important accountability gap. MCTESTP lacks leverage, as there is no linkage between policy alignment and performance of institutions and the funding they receive from MEF.

The financial reform strategy is therefore not targeted at merely supporting a straightforward expansion by using public resources more efficiently and in the process attract more resources, but also at improving institutional accountability, performance and policy alignment, while making the system more accessible, equitable and responsive to student needs.

Indeed, where resources come from, to whom they flow, and based on which mechanism they are allocated has a fundamental impact on how stakeholders behave. This in turn has significant impact on what the outcomes are in terms of quality, efficiency, and relevance of the system; on how equitable access is to the system; and on the degree to which governance of the system can be effective and aligned with national policy.

Overview of the overall design of EFES

The Funding Matrix

As shown in the figure below, international research⁹ distinguishes four types of higher education funding systems organised along two axes showing (1) how input or outcome oriented and (2) how centralised or decentralised the system tends to be.

Depending on where the system is situated with respect to these two axes, four basic funding systems can be distinguished:

- **Budget oriented** (the state finance the activities of HEI through their annually negotiated budgets)
- **Program oriented** (Based on performance formula, e.g.: the state pays for the number of credits accumulated by the students)
- **Supply driven** (The state awards contracts for the supply of a number of graduates through a competitive tendering system)
- **Student centred** (Core funds of institutions are supplied through their clients (the students) who are funded through a voucher or bursary system)

Figure 1. The Funding Matrix.

⁹ Funding Higher Education: Options, trade-offs and dilemmas (Ben Jongbloed 2004), paper for Fulbright Brainstorms 2004 - New trends in Higher Education

Mozambican public HEI operate currently under a budget-oriented approach while the government has introduced market elements by opening the sector for the provision of higher education by the private sector. Furthermore, a pilot of provincial scholarships has introduced elements of a student-centred approach to funding.

EFES – Overall design

In preparing the EFES design, it was decided to keep the scope of the model within the boundaries of the Public Higher Education System in order to avoid the political risk of draining public resources from the already underfunded public institutions towards competitive private institutions. This red line eliminated the purely supply driven approach from the options shown in the Funding Matrix. Indeed, it was considered that the Mozambican political system is not ready for a model whereby government would award contracts for the supply of a number of graduates through a competitive tendering system to public and private institutions alike.

However, the government and stakeholders agreed that the current input oriented system is increasingly strained as the fast growing number of students vastly outpaces the annual increases in state funded budgets for the public institutions. This trend leads to a rapidly shrinking budget per student, negatively affecting the quality and relevance of the teaching programmes while also deteriorating the equity of access as the competition for places at public institutions keeps increasing. It was also felt that the coping mechanisms that public institutions developed such as organising paying programmes with evening classes, and allowing teaching staff to supplement their depreciating income in the rapidly growing private higher education sector, are increasingly shifting costs towards families while students receive diminishing support to succeed. In addition very low graduation rates indicate efficiency and quality problems that will be better addressed through a result based funding system.

As shown in the figure below, the design of EFES therefore aims at gradually shifting the funding system away from input funding towards performance based formula funding and project funding, complemented by student centred funding and cost sharing. Over time, once the basic reforms have been funded, the Institutional Fund (IF) may shift further towards the bottom right corner of the funding matrix, as projects will be awarded on a more competitive basis.

Figure 2. EFES and the Funding Matrix

The new design for funding higher education in Mozambique as put forward in EFES and approved by the Council of Ministers in July 2013, foresees in the implementation of a balanced mix of three funding streams.

The two direct funding streams are the Base Fund (BF) and the institutional Fund (IF).

The indirect funding stream is the Student Fund (SF).

These funding streams are placed in the upper right and bottom left quadrants of the Funding Matrix, compared to the current model, which is situated in the upper left quadrant.

The Base Fund allocates state funding directly to institutions based on a formula taking into account student numbers and costs of the different types of programmes, graduation-rates, number and types of programmes offered, and qualification levels of academic staff. The Objective is to achieve more efficient economic use of public funding and more qualitative and relevant programming by institutions whilst achieving better student progression and graduation rates. It also aims at improving reciprocal accountability between the Government and the institutions. As the formula foresees in fixed rates per student, the Government will have to increase the budget of the institution in line with the expansion of student numbers and programmes it requires from these institutions in order to safeguard adequate levels of expenditure per student. The institutions on their part will have to justify the funding with quality teaching staff, quality programmes, and adequate student progress and graduation.

The Institutional Fund (see figure below) allocates state funding directly to institutions based on the projects they propose, and according to a set of criteria in line with government policy objectives and institutional strategy objectives. The objective is to support institutions in designing and implementing innovative management, administrative and academic capacity building projects in support of EFES. The Institutional Fund is also aimed at boosting research capacity and results. Based on the experience with the World Bank Funded Competitive Funds (QIF and FDI), the Institutional Fund is considered to be also a transparent vehicle for raising and allocating donor funding and expanding the capacity of public institutions to develop human capital in Mozambique.

Figure 3. Direct Funding Streams

The Student fund (see figure above) allocates state funding indirectly to institutions following student choice, and generates additional private funding through an eligibility formula aimed at fully funding disadvantaged students through state funds, while progressively requiring cost participation by those students that can afford to contribute. The objective is to achieve more efficient socioeconomic targeting of state funding, increase the inflow of private funding to the sector as a whole, and ease the strain on public resources in financing the expansion of access. In addition, the Student Fund provides a transparent vehicle for raising and allocating donor support towards the demand side to enhance equitable access and sustainable expansion of access in the Mozambican Higher education system.

EFES seen from different perspectives

Figure 4. Indirect Funding streams

EFES is a dynamic and interactive model, in which changes in the design of one funding stream can have effects on the functioning and effects of the rest of the overall model.

In designing EFES, care was taken to always review what each decision would mean from the three main perspectives (governance, institutions, students), in order to ensure that there would be coherence and consistency in the incentives it produces and the effects it has for each of the stakeholders.

From governance perspective, the two direct funding streams should offer alignment of resource allocation and steering of the system towards stated policy objectives through formula based incentives and funding of innovation and research projects. The result based funding approach should also provide more transparent funding and better accountability. The indirect funding stream will provide more equity of access to the public higher education system while improving the sustainability of its expansion and providing incentives for aligning student choices with development objectives.

Through the development of transparent funding mechanisms for each funding stream, the government can engage more effectively with the donor community in mobilising funds and support for higher education. Donors can fund the three funding streams in support of their respective objectives. By contributing to the Base Fund, donors can

contribute to creating more performance and result-based institutions able to provide more relevant and better quality programmes, through the Institutional Fund donors can contribute to strengthening management and governance systems in the institutions and boost institutional research infrastructure and capabilities, and through contributing to the Student Fund they can provide support to more equity and sustainable expansion of access to higher education.

From the perspective of the institutions, the three streams should translate in more autonomy and flexibility in allocating resources, more opportunities for differentiation as funding reflects costs of more expensive programmes, a better balance between funding and results, increased funding through student cost participation, and improving reciprocal accountability and transparency in the dialogue with governance.

From the students perspective the direct funding streams should improve the institutional environment towards more student centred approaches leading to more relevant and qualitative programmes while offering support for progression and graduation. As cost sharing from students with advantaged socioeconomic backgrounds will provide additional private funding enabling institutions to open more enrolment places, the indirect funding stream should open up more opportunities for disadvantaged students to enter the public higher education system.

The proportional dynamics of the EFES funding streams

As EFES is a redesign of existing flows of state funding to the institutions. Historical state funding and its incremental increase is the overall base-line budget from which the three funding streams have been carved out.

However, there is a caveat because EFES does not cover the whole amount of state funding for the institutions. EFES only refers to all direct and indirect costs related to teaching and research. It excludes other activities such as museums, sports clubs and other societal activities that bigger and older universities such as UEM and UP have historically accumulated. Furthermore, buildings and other heavy infrastructure also remain excluded from the three EFES funding streams. These activities will for the foreseeable future be financed as before.

In short, the base line budget that is used for redesigning cash flows from the government to the institutions is the full higher education budget currently flowing to the selected

institutions; minus the budget for infrastructure, and minus budgets for activities, which are not related to the core activities of teaching and learning, and research. The subtracted budgets will however still remain available to these institutions under the current input based financing model, in addition to the funds that flow through EFES channels.

The Formula based Base Fund will focus on financing the teaching and learning side. The project driven Institutional Fund will focus on building institutional capacity for management and funding research. The socioeconomic targeting and cost sharing driven Student Fund will focus on channelling funds through the student with scholarships and by consolidating all other existing social support for students in social scholarships. IBE will also set up student loan schemes.

The proportion each stream takes up in the overall model when it is fully implemented is estimated to be at 60% for the Base Fund, 10% for the Institutional Fund, and 30% for the Student Fund. However as implementation will have to be carried out in stages, starting with the Base Fund, these proportions will be built up over time.

Ideally the Base Fund and the Institutional fund start out together, signalling the first major change of shifting of the supply side financing from input funding to formula based and project based funding. In case the Base Fund starts out on its own first, all costs that would be project based under the Institutional fund will then continue to be input financed, until the Institutional Fund comes on stream.

If both are on stream, the Base Fund and the Institutional Fund will be providing 90% and 10% respectively of EFES funding. As the Student Fund will be introduced, part of that funding will be rechannelled, until the designed 60%, 10%, and 30% have been reached respectively. These targets are indicative and may be revised as EFES matures. The final balance should reflect the mix of incentives that will optimise the achievement of EFES objectives. The coming on stream of the Student Fund will entail a downward re-calibration of the base rates in the Base Fund, effectively shifting money from direct to indirect funding, and therefore; from the Base fund to the Student Fund. The Base Fund Formula with all its policy levers will remain intact, but they will be applied on a lower base rate.¹⁰

¹⁰ See the detailed design of the Base Fund for an explanation on the formula and its policy levers

As long as the Student Fund does not come on stream the policy objectives related to the demand side will not be supported with the incentives incorporated in the design of the indirect funding stream of EFES. As is reported in the detailed design of the Student Fund, the implementation of the indirect funding stream still needs a lot of preparation and political commitment, possibly leading to its overhaul or partial redesigning. Depending on the institutional arrangements, government makes in the meantime, social support for students scholarships can remain within the input budget for the institutions, as is currently the case, or it can be transferred to IBE and delivered in the form of social scholarships.

As the establishment of a student loan scheme is still in the research and pre-design stage, student loans will come on stream as soon as the design is tested and piloted, most probably also under the governance of IBE and MCTESTP.

The EFES Policy mix and outcomes

The EFES direct and indirect funding mechanisms provide important incentive instruments for steering the higher education system. The relative proportions of the EFES funding streams imply an optimum in the balanced policy mix of incentives to achieve the overall higher education policy outcomes.

More particularly, with EFES the government can balance the achievement of Base Fund objectives (efficient economic use of public funding, qualitative and relevant programming, better student progression and graduation rates, and reciprocal accountability between the Government and the institutions), with Institutional Fund objectives (innovative management, administrative and academic capacity), and Student Fund objectives (efficient socioeconomic targeting of state funding and increasing the inflow of private funding in financing the expansion of access), by optimising the mix of incentives from these three funding streams.

In the last chapter of this report, we offer an example framework for analysing, monitoring and evaluating the EFES policy outcomes. The model presents an example of how to develop an overview of the policy trade-offs outcomes and risks.

Given that it was devised in 2011, early during the preparations for the implementation of EFES, the model is due for an update incorporating the developments that have taken place in fleshing out and testing the three funding stream of EFES. An updated set of policy

indicators aligned with the Hemis Framework and also with CNAQ criteria is needed in order to include the indicators of the three funding streams as well as establishing the quality dimension explicitly in monitoring and evaluating the policy outcomes of EFES.

For each of the indicators in the model a set of underlying scorecards with sub indicators need to be developed for establishing the base line, and subsequent monitoring cycles.

The EFES design and implementation process (2011-2017)

Preparatory phase 2011-2013

As part of the NUFFIC funded COHERE project CHEPS consultants worked with the Vice Minister and the national Director of DICES to consolidate the results since the launch of the 2000-2010 Higher education strategy and develop the outline of the Base Fund, Institutional Fund and Student Fund in the EFES document for the approval by the Council of Ministers. This approval took place in July 2013, only after an extensive national consultation round with stakeholders by the Vice Minister and DICES.

In parallel, the CHEPS consultants worked with DICES to upgrade the Excel based data-collection system for annual higher education statistics towards the development of a full-fledged higher education management information system (HEMIS) able to support policymaking as well as providing the data required for the implementation of EFES. In 2012, CHEPS consultants developed a HEMIS Framework document¹¹ and contributed to the TOR for sourcing out the development of a database, application software and training under World Bank funding. The aim was to have the system developed and launched for the data-collection cycle of 2013.

In 2011 the CHEPS consultants also started working with the scholarship institute (IBE, or Instituto de Bolsas de Estudos) for the development of an implementation plan for the Student Fund. The design was based on an eligibility model developed by Mozambican consultants funded by World Bank in the period 2006-2008. The preparations entailed reviewing the eligibility model and making it operational through a database and software application aimed at sorting students according to socioeconomic bands with defined cost sharing levels for each. It also entailed reviewing the processes that would have to be carried out and the institutional needs and capacity of IBE in the face of managing tens of thousands of scholarships instead of the few hundreds they were managing currently. An implementation strategy for the roll out of the software and student applications was developed and a first pilot was being carried out by the time the CD EFES was established.

¹¹[https://www.academia.edu/7142508/Higher Education Management Information System HEMIS Framework document](https://www.academia.edu/7142508/Higher_Education_Management_Information_System_HEMIS_Framework_document)

The EFES steering Committee implementation activities 2014-2015

When the EFES Steering Committee was established, all preparatory work converged to one place with all stakeholder representatives at the table. As a first step, a reference table of roles and responsibilities of the Steering Committee for the implementation of the new Higher Education Financing Strategy was established describing the roles and responsibilities of each stakeholder for implementing the Base Fund, Institutional Fund, and Student Fund respectively.

The EFES steering committee got to work with listing the main issues for each of the Funds and drawing up an agenda for treating each of these issues politically, institutionally, and technically. This listing provided an overview of the issues that needed to be resolved in order to enable implementation, and became the core work programme of the EFES steering committee.

Based on these listings it was decided that the best strategy would be to concentrate first on the Base Fund given that its development was most advanced while it represents the largest share of the new funding model and would generate a profound change in higher education funding culture towards performance-based financing. In addition, the existing consensus between the government and the higher education institutions on the broad outlines of the Base Fund formula encouraged the EFES Steering Committee to conclude that implementing the Base Fund would carry only moderate political and implementation risk.

While the funding formula had been outlined in sufficient detail for obtaining the approval of the Council of Ministers, it was crucial to move to a more sophisticated level in order to fine-tune the model to the realities of the Mozambican context. This fine-tuning needed to take place in a participative way with involvement of the institutions so that it could be ensured that the incentives in the formula would generate responses from the institutions in line with the stated higher education policy objectives.

The EFES steering committee commissioned a pilot trial of the Base Fund Formula with the three steering committee members UEM, UP and ISPG. This trial enabled the consultants to test the principles of the Base Fund and fine-tune the component variables and the policy levers of the formula on the basis of historical data and compare the effects on the income of the three institutions between the historical input-based budgeting and what it would become based on the simulated formula driven Base fund. The results of

this simulation were reviewed, fine-tuned, and presented to the EFES steering committee after which the CHEPS consultants in cooperation with DNES and the EFES Task Force expanded the simulation to all institutions.

As second, it was envisaged to bring the Institutional Fund on stream. It was estimated that this could be done rather quickly as there exists a long and successful history of World Bank funded competitive funding cycles with a tested model procedures and modalities under the Quality Innovation Fund (QIF), and subsequently the Development and Innovation Fund (FDI), on which EFES can build. The main issue that needed to be sorted out was the institutional framing of the fund within the Mozambican institutional landscape. A potential solution was to include the new Institutional Fund as a funding stream in the already existing Research Fund (FI) under the wings of the MCTESTP. The Minister was open to the idea but signalled that he first had to reorganise the existing Research Fund he inherited from the previous MCT, before including new funding streams.

The EFES Steering Committee also took stock of the work done with IBE in order to prepare the implementation of the Student Fund alongside the Base Fund. However, based on the experiences with the pilot phase, It was decided that this funding stream of EFES still presented major problems with respect to refining the eligibility index, the process of data collection, and the feasibility of obtaining the level of transparency from students and their families in order to be able to determine their socioeconomic status, and hence their level of cost participation.

In addition, given the potential problems in communicating the relatively complex cost sharing model to the larger public in a climate of growing political animosity between the governing party and the opposition, it was decided to give this EFES funding stream more time to be reviewed and fine-tuned, until the conditions would be right for launching its implementation.

The EFES Task Force implementation activities 2015-2017

In follow up of the results of the pilot trial simulation of the Base Fund Formula carried out under the EFES steering group, the Task Force commissioned a first system-wide Simulation Seminar with all public higher education institutions on May 11th, 2016 in a plenary session chaired by the Minister of MCTESTP. During this meeting, the CHEPS consultants presented the preliminary results from both the EFES steering Committee and EFES Task force in the form of (1) a detailed simulation of the formula based on data collected from the institutions (2) a proposed new budgeting format and process, and (3) a list of questions that remained to be resolved.

The Simulation Seminar was fully attended by the invited participants. The Minister engaged with the institutions in discussing the preliminary results of the formula simulation, the principles and process of the proposed new budgeting mechanism for higher education, and the crucial importance of reliable data to enable the implementation of the Base Fund.

During the seminar the remaining issues relating to the Base Fund were further resolved as well. It was decided that after the required adjustments were made to the Base Fund Formula, the 12 selected institutions would provide their 2016 data and 2017 projections in the required formats in order to further fine tune the adapted model during a second simulation and training seminar on the 17th of June. This seminar would launch the process of Formula Based Funding for the 2016-2017 budgeting cycle.

The Ministry committed to providing a standardised online Student registry for the next budgeting cycle in order to enable real time data collection without IES having to provide it manually. The Ministry also committed to bringing on line a more robust HEMIS data reporting system as soon as possible.

Meanwhile, despite an official request from MCTESTP, the MEF had also not yet provided 5 years historical data on the budget execution of the 12 institutions participating in EFES, referring instead simply to the published accounts on its website. Consultations of this website however yielded only aggregated information, which was not fit for purpose. With access to only two years of financial information, the calibration and fine-tuning of the formula remains severely limited. Nevertheless, the two simulations were considered a useful learning process in preparation of launching the 2016-2017 budgeting cycle.

While the timeframe was shortening fast and the MCTESTP was waiting for the higher education overall budget limit from MEF, it was still considered that there would be enough time in the budget cycle to fine-tune some elements of the formula in the process of assessing the data and budget projections of the institutions.

As mentioned earlier, the hidden debt crisis led the MEF to delay establishing the budget limit with three months and to finally abandon the new EFES budget cycle. As institutions went back to direct negotiation of input budgets with MEF in a climate of severe cuts to their funding, they had no more incentive to deliver the data and budget projections according to the EFES formats to the MCTESTP.

This situation left the MCTESTP without the authority and the time to implement the Base fund formula and EFES budgeting cycle and the political window of opportunity for launching EFES closed in a climate of severe budget cuts across the whole public sector.

Direct Funding stream I: The Base Fund Formula

The Base Fund allocates state funding directly to institutions on the basis of a formula taking into account student numbers and costs of the different types of programmes, graduation-rates, number and types of programmes offered, and qualification levels of academic staff.

The Objective is to achieve more efficient economic use of public funding, and more qualitative and relevant programming by institutions whilst achieving better student progression and graduation rates.

It also aims at improving reciprocal accountability between the Government and the institutions. As the formula foresees in fixed rates per student, the Government will have to increase the budget of the institution in line with the expansion of student numbers and programmes it requires from these institutions in order to safeguard adequate levels of expenditure per student. The institutions on their part will have to justify the funding with quality teaching staff, quality programmes, and adequate student progress and graduation.

Detailed design of the Base Fund Formula

The Base Fund formula as described below represents the results of all EFES steering Committee meetings, simulation seminars, task force meetings and further adjustments by the CHEPS consultants in response to all feedback and considerations brought forward.

Based on these developments the formula for the Base fund was designed as a set of component variables upon which specific policy levers are applied in order to create incentives for institutional performance in line with higher education policy objectives. In addition, a set of broader policy levers define the structure and scope of the Base Fund Formula.

Component variables

The Base fund formula has four main component variables, which are the basic building blocks of the Base Fund formula.

- **[MAT]^t** The number of enrolled students to be financed in a given new academic year.
- **[GRD]^{t-1}** The number of graduates in the previous academic year
- **[POF]^t** The number of authorised/accredited programmes
- **[PRF]^t** The normative proportion of full time and part time teaching staff with the levels of qualification as required by law

By means of these four component variables, government funding is allocated so that it rewards institutional performance in the creation of access for students through a student based measure of enrolment [MAT], a performance based measure of study completion to Graduation [GRD], and two operation based measures of the quality of offered programmes [POF] through authorisation/accreditation processes, and achieving higher qualification levels of teaching staff [PRF] in accordance with the criteria as stated by law.

[MAT], **[GRD]**, and **[POF]** represent quantities which are applied to a specific base rate for each. The base rate itself is the result of the weights given to each component variable in the structure of the Base Fund Formula within a given overall formula budget. This is further explained under the section on broader policy levers and structure.

For **[POF]**, the accreditation condition needs to be phased in, in alignment with the capacity of CNAQ to organise and build capacity within the institutions and within its own

organisation to carry out accreditations. In order to launch the Base Fund part of EFES, it was proposed to consider all authorised courses as acceptable for financing during a grace period. During EFES steering committee sessions this period was estimated to be about 5 years, provided CNAQ would have the resources at its disposal to do so.

In contrast to the other three component variables, [PRF] is not a quantity applied to a base rate. [PRF] is applied as a lump sum to those institutions that satisfy the minimum criteria set by law. Those that do not satisfy the minimum criteria do not get any reward until they achieve them. This component variable was added at the request of participants during the first simulation seminar in order to adequately reflect the higher cost of higher qualified teaching staff.

Policy levers

The component variables [MAT], [GRD], and [POF] are conditioned by a number of specific policy levers, which have a amplifying or limiting effect on the product of the component variables and their base rates. The policy levers allow policymakers to steer institutional behaviour by rewarding desired outcomes or dissuading undesired ones.

1. **[TNG]** The normative time to graduate indicates the time frame within which students need to progress from enrolment to graduation applies to [MAT]. It limits financing of an enrolled student to the formal time according to the study programme plus a determined grace period. During the simulation sessions with the institutions [TNG] was defined as formal study time of the study programme plus one year. Beyond this policy norm, state funding for the student will dry up, and the institution can choose to finance from its own budget or request the student to continue in paying evening classes. This parameter is aimed at stimulating both institutions and students to progress adequately through the cycle to optimise the availability of student places and avoid clogging up the system with underperforming students. After deliberations during the Simulation seminar, it was decided to include a [TNG] transition measure as well. Whereas new students entering the system receive a [TNG] of the number of study years in their programme plus one grace year, all existing students in the system will receive a TNG equal to the individual remaining study years in their programme plus one grace year. [TNG] has no impact on [GRD]. The Base Fund formula rewards graduation [GRD] regardless whether it is within [TNG] or not, so

institutions can still collect the [GRD] rate for a student who graduates beyond [TNG]. This to stimulate institutions to keep supporting a student who is slipping only slightly out of the [TNG] timeframe, and ensure that students complete their degrees with thesis or final project before they enter the labour market. While entering the labour market even without a thesis is recognised as a beneficial result for the country, the national policy for higher education is to produce graduates with a full degree.

- **[a], [b], [c]** indicates the type of programme in which the student is matriculated. It applies to [MAT]. A specific rate approximating the real average cost is applied to each programme type. Type [c] programmes such as law and social sciences are calculated at a base rate per student. Type [b] programmes such as engineering and sciences are calculated at a multiplier of the base rate, and type [a] programmes such as medicine and biosciences have the highest multiplier of the base rate. Both the base rates and the applied multipliers are informed by cost studies and international norms and must be set by state policy periodically in agreement with public institutions. During the simulation, the multipliers calibrated around 1 for [c], 2 for [b], and 3 for [a] respectively. The base rate, to which the specific policy levers are applied, is further calibrated based on their relative weights within the dynamics of the model.
- **[p] or [np]** indicates whether a programme is priority or not priority according to the government 5 year plan, and applies an additional multiplier to [GRD] and Programmes offered [POF]. The [p] / [np] multiplier is aimed at stimulating more relevance by aligning the portfolio of programmes on offer with the government plan. The choice of priority/non priority programmes in the five-year government should be informed by longitudinal tracing of graduates and their employment track record, and also by other studies aimed at aligning the development of human capital to societal needs and economic prospects of specific industries. During the simulation the value of the [p] multiplier calibrated around 1.1 The [a], [b],[c] cost bands are identified based on UNICEF ISCED 2011 codes and for ease of reference, the ISCED Priority/Cost matrix maps out the programmes according to their priority and cost levels by cross referencing the [p]/[np] and [a], [b], [c] multipliers

Priority areas [p]	A	B	C
	72	62	14
	42	52, 58	34
		81	
		44, 46, 48	
Non priority areas [np]	A	B	C
	64	54	21, 22
			31, 32, 38

Figure 5. The ISCED Priority/Cost Matrix

The Formula

As summarised in the table below, the Base Fund Formula is the sum of the component variables, each leveraged with the respective multipliers and conditioned by criteria where applicable.

Component variables	Policy levers
# Enrolled ^t [MAT]	* [a], [b], or [c]
+	= Within [TNG]
# Graduated ^{t-1} [GRD]	* [p] or [np]
+	
# Programmes ^t [POF]	= Authorised or Accredited
+	* [p] or [np]
% Qualified staff [PRF]	= Conform to the law

Figure 6. The Formula component variables and policy levels

In the Base Fund Formula Institutions can increase their budgets by combining measures such as (1) increasing student numbers, (2) changing the disciplinary mix of their student enrolment across cost bands and/or across Priority/non-priority programs, (3) reducing time to degree, (4) improving graduation rates, (5) adding new (accredited) degree

programs, (6) raising the qualification levels of teaching staff in line with requirements by law.

In addition, broader policy levers influence the structure and scope of the Base Fund Formula

Structure

- **The size of the budget** for Base Fund formula funding of the institutions. This total budget amount is influenced by the overall budget limit for higher education and its relative weight in relation to the other funding streams such as the Institutional Fund and Student Fund. The relative weight of the base fund is also conditioned by which costs are being covered by formula funding as further explained below under 'Scope'.
- **The relative weight** given to [MAT], [GRD], [POF], and [PRF] within the Base Fund budget represents the relative importance given to each component variable in the formula. In the simulation model [MAT] indicating student enrolment and cost level was given the greatest weight at 75%, [GRD] indicating delivery of fully graduated human capital at 10%, [POF] representing investment in programme delivery at 5% and [PRF] representing the required teaching staff qualification levels about 10%. The relative weight is a broad policy lever in order to lock in the proportions between component variables after calibration of the model and fix the base rates for [MAT], [GRD], and [POF] respectively in the mid-term in order to provide sufficient predictability for institutional planning and budgeting.
- **Compartmentalisation** of the Base Fund budget into two separate funding pools became a major structural adjustment of the Base Fund after the 11 May simulation seminar. Separating the A-type institutions (UEM, UP, UNIZAMBEZE, UNILURIO), from the tertiary institutions of B, C, D type contains competition between institutions within their respective funding pools so that type A institutions compete for funding in the type A funding pool and the other institutions for funding in the type B C D funding pool. It also allows for different weighing of the component variables [MAT], [GRD], [POF], and [PRF], which yields different base rates, and allows for fine-tuning of the specific policy levers for each funding pool separately in line with the different nature of these two groups of institutions.

Scope

As a result from the deliberations of the EFES Steering Committee which were followed up with the simulation seminars conducted by the MCTESTP task Force together with CHEPS consultants, the scope of the Base Fund formula was delineated in terms of institutions, cycles, teaching modes, and types of costs:

- **Institutions covered:** All Public IES will be included under the Base Fund formula, except those with special mission. Institutions with a special mission are mostly dependent directly from a specific Ministry overseeing the accomplishment of their mission, and they may have special teaching needs, which may not be adequately covered by the formula.
 - *Included:* 12 public institutions: UEM, UP, UNIZAMBEZE, UNILURIO, ISPG, ISCISA, ISCAM, ESJ, ISRI, ISPT, ISPS, ISPM (Polytechnics under the Provincial budget would be transferred to MCTESTP at the latest for the budget cycle of 2017 to be executed in 2018)
 - *Excluded:* ISIDEF (Defence), ISAP (Public Administration), ACIPOL (Police), AM (Military), ISARC, ESCN (Nautical) because of their special mission
- **Cycles included under the Base Fund formula:**
 - *Included:* All Bachelors and Licenciatura programmes
 - *Excluded:* Masters courses and PhD courses. Master courses have in effect been privatised in the public IES and are auto-financing as part of the institutional coping mechanisms to find additional funding in the face of fast growing student numbers. It was considered during deliberations in the EFES Steering Committee that given current practice this level should remain outside the Base Fund formula. The inclusion or exclusion of Master Programmes, and PhD Programmes under the Base Fund formula is a policy decision that should reflect policy objectives. Indeed, a decision to fund Masters courses must be considered in light of the great need for significantly increasing the number of teaching staff with master degrees in line with the law. If it becomes state policy to include master programmes as part of state funding in the formula, demand will certainly increase rapidly and additional budgets will have to be included, or alternatively,

reallocate funds away from bachelors or licenciatura programmes in favour of including more Master degree courses within the existing budget.

■ **Teaching modes included in the Base Fund formula**

- *Included:* Day-time (laboral) and Distance-learning
- *Excluded:* Night shift (Pos laboral) programmes are also auto financing and therefore equally excluded from state funding (while they still do benefit from the institutions infrastructure)

■ **Type of Costs included under the Base Fund Formula**

- *Included:* The formula only covers the functioning costs and overheads related to teaching so that it cannot adversely affect income that is related to other functions and activities of the institutions. The higher rates for lab based programmes reflect the higher functional costs of running such programmes
- *Excluded:* Therefore, all costs not related to the teaching function will be financed as before. This means that investment costs (labs, equipment, infrastructure etc...), as well as research costs (PhD, studies and research projects), and other costs not related to the IES teaching function (public services rendered by universities like UEM museums and UP sports clubs) are not included in the Base Fund formula and will be financed separately with separate budget lines in the same way as before until the Institutional Fund will be established.
- The proposal to finance research activities on project basis under the Institutional Fund triggered the question how the model would accommodate UEM with its new mission as a research-intensive university with research based teaching methodologies. A possible solution may lie in creating a multiplier on the [MAT] base rate for universities that demonstrably implement innovative student centred teaching methods such as Problem Based or Research Based Learning (PBL or RBL).

The EFES budgeting process and Base Fund Formula formats

The EFES budgeting process is aimed at closing the accountability gap hampering the current budgeting process. It is based on the principle that institutions present their budgets first to MCTESTP according to the formula based format, and only when agreement is reached with MCTESTP the institutions will submit their budgets to MEF in SISTAFE format. The schedule for this EFES budgeting process is in alignment with the national 'scenario fiscal', which is the national public finance budgeting schedule.

The EFES budgeting process also relies heavily on the timely availability of information, and therefore introduces new formats for collecting and structuring data in ways that link funding to results through the student-, performance- and operations-based measures.

Therefore, this new process must be considered to be fundamentally different from the existing budgeting process because it establishes a direct link between the institutions and the regulating authority, as well as a direct link between funding and results.

The current budgeting process

Under the current 'programmatic' budgeting process each public institution receives an individual budget limit from MEF. Within this overall budget limit the institutions are required to propose the amounts they need for each line in their budget.

The budget is input based and divided in Operating costs (Staff costs, goods & services, current transfers) and Investment (mainly referring to infrastructure and equipment).

Each institution negotiates its budget directly with the MEF with little reference to results or outcomes. Generally, the institution aims at increasing the operational budget as much as possible while MEF will aim to shave off some percentage points off the requested amounts where it can. Normally the operational budget limit for an institution increases year on year in line with expenditure of the previous years. The investment budgets are allocated based on investment plans and can vary significantly from year to year. Once negotiated, the budget is fixed and allocated to the institution for the year through the SISTAFE system and disbursements are made according to Treasury schedules after previous disbursements have been justified with quarterly expenditure reports from the institutions submitted within SISTAFE.

The current system suffers from a significant accountability gap as budget negotiations entirely bypass the MCTESTP in charge of regulating and supervising the higher education

sector. The direct negotiation between MEF and the institutions is not result or outcome based and creates a serious asymmetry of information. This puts the MEF at a disadvantageous negotiating position as it can only refer to historical budgets and expenditure. Without specific understanding of the higher education sector, the MEF cannot truly assess the budget requests on their merit.

Furthermore, as explained in the rationale for EFES, the lack of linkage between funding and results creates a situation whereby government requires institutions to expand without adequately funding this expansion so that expenditure per student diminishes rapidly and affects quality of higher education.

The EFES budgeting process

To close the accountability gap, the EFES budgeting process ensures that institutions engage directly with MCTESTP in proposing and justifying funding requests, and obtaining MCTESTP approval before processing their requests with MEF. The MCTESTP has full authority for negotiating the budgets with the institutions. Therefore, instead of communicating a budgeting limit to each institution individually, the MEF provides the MCTESTP with an overall budget limit for the higher education sector within which the MCTESTP then decides on the allocation of funds across the public institutions. In effect, this means that over time the MCTESTP can reallocate more money towards these programmes and institutions that deliver quality and results in line with national policy and priorities, and less towards those that do not. It also allows institutions to align their differentiation and expansion strategies according to a clear strategy.

When MCTESTP officially launched the implementation process, the taskforce released a detailed schedule of the budgeting cycle 2016 for execution in 2017, to be completed by July 31, 2016. This schedule aligned the EFES budgeting process with the national 'scenario fiscal'.

According to the implementation schedule, the MCTESTP invites institutions to present their budget projections for operations and investments together with an executive summary of their strategy showing the overall direction the institution is taking in terms of differentiation and expansion in the medium to long term. For the direct and indirect operating costs related to teaching, institutions are requested to present it in the form of the component variables of the formula [MAT, GRD, POF, and PRF]. As the Base Fund Formula expresses funding in a per-student, per-graduate or per-programme rate and links it to the results the institutions deliver, it protects the institutions from a diminishing

1. **25 May:** MCTESTP provides formats and guidelines to the Institutions (IES) requesting 2016 registry data and 2017 projections
2. **31 May:** MCTESTP receives the overall budget limit from MEF.
3. **10 June:** MCTESTP organises a workshop with technical staff from Finance, Academic Registry, and planning departments from the institutions. In this workshop institutions bring the results of their data and projections and ask the questions they may have. The IES will receive a training in completing the data formats and projections
4. **24 June:** IES provide 2016 data + 2017 projections + other budget lines not covered by the model
5. **30 June:** MCTESTP and consultants simulate and calibrate the model with the provided IES data and calculate provisional budgets for each institution
6. **5 July:** MCTESTP meets MEF for preliminary conversations on the final MCTESTP budgetary limits
7. **10 July:** MCTESTP provides individual budgetary limits to each IES and requests adaptation to the number of study places projected in each programme accordingly.
8. **24 July:** the IES provide their adapted projections for approval to MCTESTP and enter their corresponding programmatic budget in SISTAFE
9. **31 July:** MCTESTP and MEF close the 2017 budget

Figure 7. The EFES budgeting implementation schedule

operational budget per student. In addition, the institutions project other operational and investment costs in line with their strategic plan.

After collecting all requests the MCTESTP reviews each request in comparison with historical performance in HEMIS and the strategic ambitions of the respective institution, and assesses whether the projections the institution proposes are plausible, feasible and in line with higher education policy aims. If the projections pass the test and are in line with higher education policy objectives, the MCTESTP also assesses whether the total sum of aggregated requests supersedes or remains within the overall budget limit.

If the aggregated requests are superseding the overall budget, limit the MCTESTP relays back to the MEF in order to resolve the political trade off the situation presents between the results the higher education institutions are willing to deliver and the funding that is being made available. The political trade-off will be especially salient when having to choose between providing more government funding for a given level of expansion or else reduce access in line with the level of funding the government is willing to allocate to higher education. This coupling back according to the logic of the rate based Base Fund Formula protects expenditure levels per student and allows institutions to maintain quality in line with higher education policy and standards.

As soon as the final budget limit is established and MCTESTP has agreed with each institution on their individual budget limit, the institutions can adjust accordingly, after which MCTESTP approves the adapted budget for each institution.

Subsequently the institutions translate their respective budgets into the SISTAFE input based budget line format in order to submit it to MEF for processing.

The SISTAFE format and its implications for EFES

The decision to translate performance-based information back into input format was made during the deliberations at the EFES steering committee and EFES task force after consultations with MEF. Indeed, SISTAFE, the Mozambican public sector budgeting and expenditure control system, can in its current shape and form, not accommodate other formats than input based budget lines.

Given that changing SISTAFE would need new legislation and a vote in parliament, translating performance based information into input based information was seen as the

most elegant solution in order to implement the EFES budgeting process and the Base Fund Formula, while at the same time satisfying current SISTAFE requirements.

It does present an additional step in the EFES budgeting process and brings with it a limit to the flexibility the institution can have in allocating its resources to the best possible effect. During several conversations with MEF and MCTESTP officials, it was raised that the institutions will have to be relatively accurate in distributing their MCTESTP approved formula budget over the headings of the SISTAFE categories, as it will not be possible to transfer funds between categories of expenditure in the course of execution. Within categories, however there will be more flexibility to do so.

While translating into input based budget lines for SISTAFE is not a perfect solution, the new process does have the merit that the rationale for operational funding is directly linked to the student based, performance based and operation based measures embedded in the Base Fund formula, and that an institution's budget execution will be evaluated on these measures in addition to the current SISTAFE financial control mechanisms.

In addition, the civil service statute of university staff presents other limitations to the flexibility public institutions have in rewarding and managing staff. So, while Base Fund formula funding provides opportunity for closing the accountability gap and protecting the per student expenditure to reasonable levels, the lack of flexibility presented by the SISTAFE format and by the civil service statute puts additional limitations on the degree to which institutions can allocate resources freely to deliver the best possible results.

The figure below shows EFES budgeting format allowing an institution to include formula funding in its overall budget and relate it to the SISTAFE format.

A relação entre o novo modelo e o modelo programático	
Novo modelo	Modelo Programático
Funcionamento #[MAT] * Taxa #[GRD] * Taxa #[POF] * Taxa %[PRF] = % previsto na lei (S/N) + 140000 Transferências correntes Todos Pesquisa Todos Museus, Arquivos,... + Investimento	Funcionamento 112000 Demais despesas com pessoal 120000 Bens & Serviços 140000 Transferências correntes
TOTAL	TOTAL

Figure 8. The Base Fund formula and the SISTAFE format

Alternative solutions for the future of EFES budgeting

A regime of three-year government contracts based on targets and independent verification of results was raised as a possible alternative for removing the constraints of the SISTAFE format. As this regime does already exist in some parts of the Mozambican public sector, it could be envisaged as a way for regulating the relationship between the government and the public higher education institutions. This solution would allow for formulating, funding and evaluating budget execution of higher education institutions based on EFES formats.

Contract based budgeting would also provide a clear opportunity for CNAQ, the National Quality Assurance Council, to take up the role of independent evaluator of institutional performance based on a set of indicators aligned to the Base Fund formula funding variables as well as to the other quality assurance criteria already established by CNAQ and to which institutions have to adhere¹².

In addition, a contract-based regime would provide an opportunity for creating a more flexible statute of academic staff. Indeed, provided that a political consensus can be reached to change the higher education law and the statute of academic staff in public institutions, this solution could strengthen the capacity of the public higher education institutions to provide more access and perform better under EFES in the medium term.

Calibrating and operating the Base Fund formula

The rationale for simulations

Formula funding relies heavily on the availability of data for estimating institutions budgets, and for projecting and evaluating the results institutions deliver for those budgets.

For instance, for projecting enrolment numbers [MAT] institutions need to estimate how many new students they will enrol in each year of each programme cycle. The capacity for enrolment is dependent on the institution's intake capacity and the progress students make to the next year of their programme. Ideally, students' progress each year to the next until graduation, meaning that total enrolment of new first year students would equal total intake capacity for that year in a given programme. In reality some students drop out and/or double their year while others progress. To adequately make this

¹² We will discuss these criteria in a separate section

distinction, institutions must have detailed digital records tracking their students throughout each programme. Such records enable detailed cohort analysis in order to establish new enrolments, dropout rates, student progression and graduations [GRD]. While detailed digital records are equally required for tracking the number of programmes [PRG], and the qualifications of academic teaching staff [PRF], they are much less complex to collect and report upon because there are fewer variables to track, and year on year change is slower.

In developing the Base Fund Formula, simulation has been used to (1) calibrate the broad structure and scope policy levers¹³ so that a rate can be established for each enrolled student, each graduate, and each programme offered, and to (2) calibrate the specific policy levers (TNG, abc, p/np) applied to these rates, (3) assess the relative impact of formula funding compared to historical funding and (4) anticipate potential shocks and design transition measures to alleviate them.

In order to calibrate the dynamics of formula funding, it is important to have access to a detailed three to five year historical data on budgeting and expenditure, as well as on enrolments, dropout rates, student progression and graduations, the type and number of programmes, and the level of qualifications of teaching staff in the institutions. Applying the formula on this historical data simulates the effects of formula funding in comparison to the historical income of institutions for the levels of enrolment and graduation they achieved in the programmes they operated in that period with teaching staff of a given qualifications level.

When the formula generates deficits compared to historical income levels for a given institution, it indicates that under the logic of the incentives embedded in the formula, this institution would have been underperforming and would therefore have been historically overfunded in relation to its performance. For other institutions, the formula simulation may generate funding surpluses in comparison to their historical income, indicating that these institutions would have performed closer in line with the formula incentives in which case the logic of the formula would consider those institutions historically underfunded.

¹³ Structure being defined by the size and compartmentalisation of the Base Fund budget and by the relative weights of the component variables, and scope being defined by inclusion/exclusion of institutions, cycles, teaching modes, and types of costs covered by the formula.

This being said, it is important to remember that the comparison remains hypothetical in the sense that historically the institutions were operating under a regime of negotiated input funding while being under pressure to provide access to as many students as possible. They were not acting in response to the formula as applied hypothetically and after the facts through the simulation. Indeed as soon as institutions are placed in an environment of formula funding, their behaviour would change accordingly, and the simulation helps to understand the incentives created by formula funding towards better student progression and graduation, improved programme relevance and quality, and higher levels of qualification of academic staff. Furthermore, under the current regime of input funding, typically the older, more established institutions have more clout to negotiate incremental input budgets than newer and smaller institutions, which amplifies the funding gaps these institutions would suffer hypothetically through the application of formula funding on historical data.

Simulation also helps to identify and consider the establishment of additional measures to smoothen the transition from input funding towards the formula incentives. Indeed, it is important to anticipate potential sudden shocks to the public higher education system by calibrating the formula and providing additional transition measures. However, it is also crucial to ensure that formula funding does create enough progressive stretch for the institutions to respond positively to the new incentives.

The central role of data for the EFES - Base Fund

Given the valuable information, simulation can provide for calibrating the formula and smoothening the transition, it is crucial that the quality of the data used in the simulation is reliable and consistent.

Historically DICES data has been gathering with the intent to compile annual higher education statistics for INE, UNESCO, and its annual publication for national consumption. As input finance in direct negotiation between the Finance Ministry and the institutions primary relies on historical financial information, statistical higher education data remained an annual reporting exercise with little relevance for the institutions. This data collection exercise is based on a set of formatted excel sheets collecting data in aggregated form, often manually, and in columns of which the headings are not clearly defined. Quality control of collected data is also very limited, as nor the institutions, nor DICES display the capacity to verify the veracity and reliability of the data beyond reviewing

plausible consistency from one year to the next. This point was again confirmed during the simulations, as most institutions came up with numbers in the EFES formats that were inconsistent with the numbers they provided to HEMIS.

This is an old problem and over the years, a number of initiatives have been taken to improve the reliability and quality of the data for higher education. Especially in preparation for EFES, it was recognised that data would be the basis for funding the institutions, and therefore it needs to be digital, disaggregated and preferably in a central database.

In order to make this happen a number of issues need to be resolved.

First, the institutions need to collect all the relevant data disaggregated at student level, and have it accessible to enable full tracking of their students throughout their trajectory. So far, most institutions only record the information they need to operate, which is mainly the student registry. Even this limited set of information is often not available in digital format. With support from NUFFIC E-Sura; a free of charge registry software was offered to all institutions. The uptake was mixed for many reasons related to decisions taken in the institutions, as well as for reasons of poor implementation and the localised services related to that implementation.

Second, the information needs to be centralised in digital form so that it is readily available, and accessible for financing, reporting and policy research purposes. Establishing such a Higher Education Information System (HEMIS, or SIES in Portuguese) has been a slow and difficult process.

Third, as data equals money in EFES it is appropriate to verify the quality and veracity of the data delivered by the institutions. This can be organised through independent data audits on the records and reporting related to EFES of public institutions in addition to the normal financial audits they already have in place.

While DICES had received extensive support from CHEPS consultants throughout 2011-2015 in developing the HEMIS Framework, as well as in developing the HEMIS software funded by World Bank in order to make data collection more productive and reliable; it did not succeed in rolling out the new system. Even if that were resolved, this new HEMIS would still collect data in aggregated form at the level of the institution, and not in disaggregated form at student level as would be required for adequate analysis.

Nevertheless, its cloud-based interface does facilitate more reliable data collection and flexible reporting modules. In addition, it provides a process management module for managing the procedures related to authorising the establishment of new higher education institutions and new programmes. All in all the usefulness of the new HEMIS will remain limited for EFES as it has not fully integrated the guidelines of the HEMIS Framework document, especially with respect to indicators, and to the lack of data disaggregation to student level.

With the incorporation of Higher Education in MCTESTP, the Minister has made HEMIS a priority and ordered the ICT Directorate to take over the HEMIS project and make headway with its implementation. In June 2017, it was reported that the new HEMIS would be rolled out and that a tender was being launched for the provision of access to the E-Sura registry system in all universities who have no digitised registry, and/or those that wish to change over from the one they have. Whatever the decision of the institution, it will have to make sure that its data is available in the format required for HEMIS. The next step would then be to ensure full disaggregation of all higher education data in a cloud based central database. The Ministry will focus on developing a platform for storing disaggregated data online and ensure that the Ministry and the IES will have access to such data disaggregated to individual student level. This should allow for all possible analysis and running of performance queries on the state of Higher Education, without extra work from the IES.

Meanwhile, back in 2016, the lack of detail and missing datasets prompted the CHEPS consultants to set up additional excel formats specifically for the purpose of the simulation. This not only brought additional burden on the institutions, but also required specific training during the simulation seminars to enable the institutions to respond adequately. In the end, only 8 out of 12 institutions provided data, and not all did so adequately. This left the consultants with significant inconsistencies between the data the institutions produced for the simulation and the data these same institutions had submitted to HEMIS previously. The importance of data quality and timely delivery was again reiterated during the seminars. In summary, the main issues with the data were a lack of consistency between data from 2016 and projections in 2017, misunderstandings of definitions of required data in certain columns, missing information in certain columns, and data patterns that raised questions as they seemed illogical. Institutions were also

reminded to send the same officers to all gatherings so that the capacity building investment of the MCTESTP can yield consistent results and communication. The Ministry committed to providing a standardised online Student registry for the next budgeting cycle in order to enable real time data collection without IES having to provide it manually. The Ministry also committed to bringing on line a more robust HEMIS data reporting system as soon as possible.

Meanwhile, despite an official request from MCTESTP, the MEF had also not yet provided 5 years historical data on the budget execution of the 12 institutions participating in EFES, referring instead simply to the published accounts on its website. Consultations of this website however yielded only aggregated information, which was not fit for purpose. With access to only two years of financial information, the calibration and fine-tuning of the formula remains severely limited. Nevertheless, the two simulations were considered to be a useful learning process in preparation of launching the 2016-2017 budgeting cycle.

While the timeframe was shortening fast and the MCTESTP was waiting for the higher education overall budget limit from MEF, it was still considered that there would be enough time in the budget cycle to fine-tune some elements of the formula in the process of assessing the data and budget projections of the institutions.

As mentioned earlier, the hidden debt crisis led the MEF to delay establishing the budget limit with three months and to finally abandon the new EFES budget cycle. As institutions went back to direct negotiation of input budgets with MEF in a climate of severe cuts to their funding, they had no more incentive to deliver the data and budget projections according to the EFES formats to the MCTESTP.

This situation left the MCTESTP without the authority and the time to implement the Base fund formula and EFES budgeting cycle and the political window of opportunity for launching EFES closed in a climate of severe budget cuts across the whole public sector.

The importance of Quality Assurance to balance Formula incentives

Quantitative and performance driven formula funding can create adverse effects if not properly balanced by Quality Assurance. Indeed, by rewarding the number of enrolled students [MAT] within [TNG] and Graduates [GRD], formula funding may compel institutions to lower standards and let their students pass too easily from one year to the next in order to rapidly increase funding levels.

The Base Fund Formula foresees in quality assurance in the medium term through the requirement that all offered programmes [POF] be accredited. During the deliberations of the steering Committee, it was estimated that, provided adequate resources were put at the disposal of CNAQ, it would be able to conduct a process of quality assurance and accreditation covering all programmes in five to seven years. This called for including a grace period before the accreditation requirement could fully kick in. Meanwhile it was agreed that programmes needed to be at least authorised for operation in order to be funded by the Base Fund. In this spirit, all existing programmes could be considered as authorised, while new ones would require specific authorisation to be funded.

CNAQ also received support from NUFFIC through CHEPS in developing capacity for designing and implementing quality assurance in higher education. The chosen quality assurance approach combines formative with summative evaluation. It relies first on building capacity within the institutions to develop their own internal quality assurance systems according to a set of guidelines. A group of external peer reviewers and experts contracted by CNAQ then reviews the processes and reliability of these internal quality assurance systems. The external reviewers also assess the internal quality assurance reports and use a sampling method to double check that the internal system provides an accurate reading of the state of play in the institutions and the programmes they offer. The accreditation is carried out based on 9 areas (with each a set of criteria) as listed in the figure below.

The external evaluation yields an excellent [A] when it scores in the [90%-100%] brackets, a [B] when it scores in the [80%-89%] brackets, and a [C] when it scores in the [60%-79%] brackets. Furthermore, some key areas are fundamental such as the qualifications of academic teaching staff and the availability of adequate infrastructure and equipment in line with the requirements of the programme that is offered. These need to be satisfactory; otherwise, they suffer a -20% discount on their score.

The process went off on a slow start as CNAQ itself went through some initial start-up difficulties, and also because the introduction of formal peer reviewed quality assurance processes represents a deep cultural change in the Mozambican higher education system.

-
1. Curriculum
 2. Academic staff qualifications
 3. Infrastructure
 4. Research and community engagement
 5. Internationalisation
 6. Mission
 7. Management and organisation
 8. Well being of students
 9. Technical and administrative staff

Figure 9. Areas of Quality assurance criteria

In 2014, 10 institutions presented 20 courses for external evaluation to CNAQ and none passed the accreditation criteria. With support of the World Bank, a new process, new procedures, new standards and verification criteria, a new guide for internal quality assurance and a manual for external quality assurance were established. In 2016, 3 institutions submitted 15 programmes of which 6 were accredited and 9 were not.

The new law also requires that Institutions inform CNAQ and DNES before opening a new programme, students must be assessed during the year, and their performance must be included in the results at the end of the year. This active and continuous student assessment has great potential in stimulating student progression and helping students to stay within the normative time to graduate [TNG].

World Bank actively supports the implementation of Quality assurance through the financing of external evaluators, and support to the development of institutions and their programmes from a [C] score to [B] and eventually to [A].

The recent evolutions call for a closer alignment between Quality assurance and EFES by aligning performance criteria, and creating interactivity between EFES and the Quality Assurance results.

The total number of Programmes to be evaluated is estimated at 850. Each programme takes on average about two days' work by three external evaluators mobilised by CNAQ. For 850 programmes, this comes down to a total of about 5100 person days. This is the equivalent of 3 evaluators working 220 working days per year for almost 8 years, without

counting travelling time or any other professional activity these academia and experts certainly engage in. So in order to shorten the timeline for accrediting all programmes, while taking into account travelling and other professional activities part-time external evaluators have, it would be necessary to have at least 3 teams of three evaluators carrying out an external evaluation at any given time for the coming 5 years. This would require a pool of at least 30 external evaluators to draw from, and the different academic fields that are required will further inflate this number. In addition, strategies such as targeting first the 12 institutions included in formula funding, and within those, focusing on priority programmes could help in reaching results where it counts.

As it is clearly a challenge to reach the point of accreditation for all 850 programmes, it is not possible to exclude all non-accredited programmes from Base Fund formula funding until they are accredited either. A transition measure is required to provide adequate time and conditions for accreditation to take effect in a constructive way, for instance by applying different [POF] financing rates to each programme according to its respective accreditation status. In this way, the accreditation requirements in the Base Fund Formula can help to create incentives for the institutions to move faster in carrying out internal assessments and submitting their programmes for external assessment and accreditation. This could be done as for instance by reducing [POF] funding to 25% of its rate for a given programme if no accreditation has yet taken place, to 50% if a [C] rating has been obtained, to 75% if a [B] rating has been obtained, and the full 100% can be funded if an [A] rating has been obtained. As this would affect their [POF] funding in the formula, institutions would have a clear incentive to move much faster.

CNAQ aims at further stimulating programme quality by giving an institution 2 years after obtaining a [C] score to reach a [B] score. If still only a [C] score were awarded after two years, then the institution would get another two years to achieve the [B] score. If it cannot reach a [B] score after lingering in [C] for a total of 4 years, the programme would be closed. In the same spirit, the institutions would receive a target timeframe of three years to move from a [B] score to a [A] score. However, [B] score programmes would not face closure. If in addition these scores were made public to the students, the institutions would be under additional pressure to deliver.

Risks and opportunities

Risks

There are political risks and implementation risks associated with the way the Base Fund Formula is designed, as well as with the way it is implemented.

The political risks associated with the Base Fund are limited but remain real. They are limited because the institutions involved are public and dependent on government funding. The rectors are appointed by the president, from a shortlist of three candidates put forward by the institution. Rectors do usually have strong political connections within the ruling party and will go along with the prevailing political objectives in the corridors of power. However, this political clout can also work against implementation of EFES.

During the deliberations and the Base fund simulation seminars for instance, UEM expressed a number of concerns and also raised those in a letter to the Prime Minister. UEM also failed to submit any data in the last round of data collection. As UEM had so far always played a leading role in designing and preparing EFES for implementation, there was a growing sense that UEM used the fallout of the 'hidden debt' crisis as an opportunity to express its doubts by passively withdrawing its support from the implementation process.

During his last mission in May 2017, the CHEPS consultant reached out to UEM in order to address the concerns of UEM, and was consequently invited to present the Base Fund Formula and process to the UEM Council presided by the Rector. This communication effort paid off and alleviated the concerns of UEM with respect to the applicability of the Base Fund Formula to UEM's new mission as a research-intensive university.

As happened before, the backchannels of power in the ruling party also offer opportunities for the public institution representatives to bend the ear of decision-makers, especially in times of elections, in order to support or resist changes.

The participative processes by the EFES Steering Group, the Task Force through the simulation seminars have been instrumental in identifying and largely mitigating implementation risks. This is important as implementation risks can easily spill over in political risk, as the example of UEM has shown. Therefore, it was regrettable that the EFES steering group had no more meetings from the moment the EFES task Force was established. This created a communication gap between the MCTESTP and the

represented stakeholders, and also took away a platform in which the three institutions (UEM, UP, ISPG) representing the public institutions, could express their concerns in confidence, rather than having to do this in front of all institutions during the plenary simulation seminars.

The importance of communication cannot be emphasised enough. Although NUFFIC funded the development of a communication strategy; DICES, as a directorate within the Ministry of Education for ten years between 2005 and 2015, was in a weak political position to implement it. DICES also underwent 6 changes of Director between 2005 and 2015 undermining its continuity and capacity.

The Base Fund Formula implementation risk is increased by the lack of good quality and sufficiently aggregated data. This aspect needs to be addressed consistently and comprehensively. The ICT Directorate at MCTESTP has started doing that, but it will take a concerted effort between the Ministry and the institutions to come to a satisfactory dataset and support structure.

Opportunities

There are clear opportunities as well. EFES, and especially the Base Fund has surfaced on the agenda of both CES and CNES several times over the years, and the public institutions have embraced the need for change, and engaged with the consultative processes regarding the development and implementation of EFES. The adoption of the 2007-2012 operational plan in both CES and CNES was a notable decision.

So was the decision to nominate a Vice Minister dedicated to higher education within the Ministry of Education during the 2010-2014 Mandate, which eventually led to the adoption of the EFES by the Council of Ministers in July 2013, which was a clear political signal that EFES was going to happen. This made it possible to formally establish the EFES steering committee through which the consultations for launching the implementation process could be channelled.

The restructuring of Ministerial portfolios after the 2014 elections offered new opportunities for higher education as part of the MCTESTP. In early 2016, the Minister took a keen interest in EFES and actively engaged with the institutions. This political commitment provided a new sense of reality to EFES.

The embedding of DNES in MCTESTP provides it with much more support and professionalism than it had ever received within the Ministry of education where other directors were understandably much more preoccupied with producing basic and secondary education, than by the regulatory intricacies of the much more complex higher education landscape of independent actors. The MCTESTP Directorates see higher education as an important part of the Ministerial portfolio for which they are prepared to take up responsibilities in their respective areas. With the establishment of the EFES Task Force DNES could rely on the expertise of the Planning, Financial and ICT Directorates respectively. Nevertheless, Directors expressed the concern that EFES puts a heavy burden on their capacities, which are already thinly spread over the many change projects in the broad portfolio of responsibilities of MCTESTP. Directors confirmed that continuous technical support and external financing are crucial for the successful implementation of EFES, and that this provides an opportunity for donor engagement with the development of higher education in Mozambique.

The professionalism of the ICT Directorate will also greatly improve the chances of success for addressing the need for reliable and disaggregated datasets for the implementation of the Base Fund Formula. In addition, where the sharing of registry data with the Ministry was a bone of contention for the institutions, who saw this as a breach of their autonomy in the previous decade, they have become much more relaxed as technology progresses and we all experience the inevitability of the global technological and social thrust towards sharing information.

Future integration between the registry based databases of the Base Fund and the Student Fund database enabling socioeconomic profiling of the student population, will strongly enhance the capacity for enriched policy studies and informed decision making in the regulation of higher education.

The coming of age of CNAQ and the implementation of internal and external quality assurance and accreditation will balance the performance incentives with quality controls.

On the part of the institutions, the Base Fund Formula provides an opportunity to inform budgeting by student numbers, cost of the different kind of programmes, the number of programmes, and the level of qualification of the academic staff employed. In their negotiations with government the funding base rates and the multipliers will protect

institutions from an eroding budget per student, and allow for checks and balances between budget, student numbers, and quality levels. The formula also offers government a clearer understanding between funding and results, and the capacity to steer incentives in line with desired policy outcomes.

The Base Fund also offers the option to stimulate innovative teaching methods, like problem based or research intensive teaching and learning, by for instance applying a specific multiplier to the formula for such innovative teaching methods. This is important for institutions such as UEM, with its strategy of becoming a research-intensive university. However, considering this one should keep in mind that the Research financing window of the Institutional Fund, already foresees transparent funding streams to all kinds of research projects.

The Formula funding principle of the Base Fund offers the opportunity to donors to partner up with government and fund by number of students, graduates, or programmes through the established formula base rate for each, and monitor results accordingly, in the same way as government does.

Direct Funding stream II: The Institutional Fund

In complement to the Base Fund direct Funding stream, the Institutional Fund aims at allocating state funding directly to institutions based on the projects they propose, and according to a set of criteria in line with government policy objectives and institutional strategy objectives. The objective is to support institutions in designing and implementing innovative management, administrative and academic capacity building projects in support of EFES.

The Institutional Fund is also aimed at boosting research capacity and results. Based on the experience with the World Bank Funded Competitive Funds (QIF and FDI), the Institutional Fund is considered to be also a transparent vehicle for raising and allocating donor funding and expanding the capacity of public institutions to develop human capital in Mozambique.

However as the Institutional Fund is expected to channel about 10% of the total higher education funding going to the selected public institutions, the number of projects, the amount of funds and the scope of activities funded will grow tenfold compared to the current FDI funded by the world Bank.

Design of the Institutional Fund

It was estimated that the detailed design of the Institutional Fund could be built on a long and successful history of World Bank funded competitive funding cycles with a tested model procedures and modalities under the Quality Innovation Fund (QIF), and subsequently the Development and Innovation Fund (FDI).

The main issue that needed to be sorted out was the institutional framing of the fund within the Mozambican institutional landscape. A potential solution was to include the new Institutional Fund as a funding stream in the already existing Research Fund (FI) under the wings of the MCTESTP.

As both the EFES Steering Committee as the EFES Taskforce had their hands full with fleshing out and testing the Base Fund, while IBE was doing the same for the Student Fund, and the Minister signalled that he first had to reorganise the existing Research Fund he inherited from the previous MCT, before including new funding streams, the detailed of the Institutional Fund was postponed. The plan was to start fleshing it out as soon as the Base Fund was operational.

Nevertheless, it is useful to point out a summary of the work that was already done as shown in the figure below, in order to provide a basis for the more detailed work to come.

Figure 10. The Institutional Fund

The Institutional Fund will provide financing windows to the institutions in support of the implementation of EFES. The main areas covered in the outline design, which will be

further fleshed out, are projects related to innovation of governance, management and teaching in the institutions, specialised installations and equipment for teaching and research, research projects, and other projects that may be allocated on a competitive basis.

Management and governance innovation projects

This window is aimed at helping institutions with the innovation of management and governance systems required for the implementation of EFES.

These projects can for instance include:

1. Governance innovation and the development of strategic management practices
2. Data management and setting up of adequate student registries with student tracking software and integration with the cloud based data system for the Base Fund.
3. Innovating and reforming financial management including student based, performance based, and operations based budget projection systems in line with Base Fund requirements.
4. The implementation of new performance management and incentive systems for academic and support staff
5. The implementation of differentiation and specialisation strategies
6. Internal quality assurance systems and implementation of quality standards as required by CNAQ regulations
7. Development of Credit accumulation and transfer systems,
8. Piloting and consolidating curriculum and teaching innovations

It is anticipated that the selected institutions will submit to MCTESTP a set of well-designed and adequately planned projects that make sense within their own institutional strategy, and within the broader frameworks of higher education policy and reform in Mozambique. As these projects are in line with the implementation of EFES and other higher education policies and benchmarks, funding will be based on the quality of the proposals and in proportion with the size of the institution. It is expected that all 12 institutions do design, plan and implement such projects. Funding will therefore not be

based on a competitive zero sum model and inter-institutional cooperation will be welcomed and rewarded.

Specialised installations and equipment for teaching and research

This window is aimed at helping institutions with the innovation of installations and equipment in support of differentiation and specialisation, and also to ensure that standards are in line with the quality assurance requirements for the programmes offered, in support of their accreditation.

It is required that the projects submitted are consistent with the institutional strategy and in line with establishing or bringing up to standards the priority programmes [p] as listed in the EFES priority/cost matrix as presented in the design of the Base Fund above.

For allocating funding to such project proposals from the selected institutions the Institutional Fund will take into account the existing teaching and research infrastructure, the available expertise and level of qualification of academic staff, as well as the strategic orientation of each institution. In addition, the Institutional Fund will seek advice from MCTESTP in assessing the projects within an overall framework of the creation of human capital in line with the national socioeconomic development needs.

Research projects

While the Base Fund is above all aimed at funding teaching, the institutional Fund is designed to create a transparent framework with clear institution level indicators for funding research.

1. Number of Publications, peer reviewed
2. Number of presentations at national and regional conferences
3. Number of research and consultancy projects and amount of financing obtained
4. Number of Academic staff, member of research networks or national and international academic associations.
5. Number of PhD supervised and number of PhD or Master theses successfully concluded.
6. External quality assurance of research by peers
7. Premiums and awards for academic realisations

Figure 11. Examples of research indicators at institution and aggregate level

In the figure above, examples are given of the type of indicators at institutional level that can be devised for measuring research performance in an institution.

With a project-based approach, the Institutional Fund aims at ensuring that research projects that are presented for funding are well designed, planned, and executed. In addition, to qualify for funding, research projects need clear indications of the outcomes that are anticipated and provide the criteria by which the results will be made tangible and measurable. CNAQ has devised criteria for research and community engagement that can be used for guiding such research projects. Each PhD thesis will also be considered a research project, and will be required to adhere to these same conditions and criteria for funding.

However, it is anticipated that as certain institutions become more research intensive, that the line between teaching and research will become blurred.

UEM made this case during the deliberations on the Base Fund. As UEM has embarked on a strategy of becoming a research-intensive university, there were justified concerns that the Base Fund would not be responsive to the strategic direction of the institution. Part of this concern is catered for by the Research financing window of the Institutional Fund, and in order to make the Base Fund more responsive to research intensive teaching, it can be considered to apply a specific multiplier to the formula for such innovative teaching methods.

Indeed this window actually represents a great opportunity for a research-intensive university such as UEM, to streamline and obtain transparent government funding for its research activities.

Competitive projects

Based on the experiences with QIF and FDI, this window offers space for all initiatives not foreseen in the three other financing windows of the Institutional Fund, and for which institutions can make proposals.

These proposals will be evaluated on a competitive basis by the Institutional Fund with a set of criteria inspired by the QIF and FDI experiences and in alignment with national development opportunities, innovation potential and applicability.

Indirect Funding stream I: The Student Fund

The Student fund allocates state funding indirectly to institutions following student choice, and generates additional private funding through an eligibility formula aimed at fully funding disadvantaged students through state funds, while progressively requiring cost participation by those students that can afford to contribute.

The objective is to achieve more efficient socioeconomic targeting of state funding, increase the inflow of private funding to the sector as a whole, and ease the strain on public resources in financing the expansion of access.

In addition, it is considered that the Student Fund could be another transparent vehicle for raising and allocating donor support towards more equitable access in the Mozambican Higher education system.

Detailed Design of the Student Fund

The Student Fund complements the supply side measures of the Base Fund and the Institutional fund with measures on the demand side. As such, the Student Fund represents a re- channelling of existing public funding away from direct input funding towards indirect funding whereby the money follows the student. The Student Fund therefore does not offer extra money but represents a new way of channelling a part of existing public funding via the student instead of directly to the institutions. It does so by introducing the principle of cost sharing and linking the amount of cost to be shared by the student to his/her socioeconomic profile.

The current funding system and its socioeconomic effects on the demand side

The current system of quasi-free higher education is a remnant of Mozambique's communist past when demand for higher education was still very limited and catered for by only three public universities. Still today, all students who obtain a place in a public institution are therefore funded to almost 100% regardless of their socioeconomic situation. However, since the competition for a place at a public university has increased in line with the exponential growth of demand for higher education in Mozambique, public institutions manage annual enrolment limits for each programme and have become more selective by raising the bar of their merit-based entry exams. Over time, this yielded the unintended consequence of skewing the system in favour of students with the best primary and secondary education, who are mostly urban students with the means to go to private schools. In contrast, students from lesser socioeconomic backgrounds increasingly fail to pass the test and end up in private institutions that charge the full teaching cost. Because of changing circumstances, a well-intended policy of providing free education, ended up directing public funding to the benefit of the better off and leaving the less well-off to fend for themselves in the market, thereby reducing equity of access.

In order to address this situation in part, IBE currently provides hundreds of higher education scholarships both at national and international level, as it operates a World Bank funded scholarship programme. These scholarships cover tuition where applicable plus subsistence costs, and when abroad they also include all travel and lodging costs. These scholarships are based on selection criteria emphasising merit and the targeting of

students from rural areas, in order to reach as many students as possible, who would otherwise have less chances of accessing higher education.

While the current system may be skewed towards those students that are socioeconomically better off, there are still many students that do need support when enrolled in a public institution. The public institutions operate scholarship schemes combined with free lodging in university infrastructure especially for students coming from the provinces, who face extra costs and do not have a family support system in the city. These scholarship schemes concern mainly funding of subsistence, transport, and study materials. Under the current funding system, the public institutions include such scholarships as a separate budget line in their annual funding requests to the government.

The Student Fund and its intended effects

The student fund is designed to enable cost participation by students in line with their socioeconomic status. This measure is designed to improve equity of access by better targeting public funding as well as increasing the flow of private funding to public institutions through cost sharing. Increased private funding in turn provides more room for sustainable expansion of equitable access to the public system.

Furthermore, socioeconomic targeting requires unprecedented fiscal transparency from citizens in return for accessing publicly funded higher education. Besides requiring disclosure of assets and income, it requires both the student and the members of the household to register for NUIT (the unique individual fiscal registration number) before he or she can benefit from accessing publicly financed higher education institutions. This measure establishes future fiscal transparency for the application of the ECI formula, and reinforces the implementation of the National fiscal register as the central instrument in broadening the tax base in Mozambique. In time, NUIT will also allow for longitudinal studies aimed at informing higher education policy development by tracking and better understanding how graduates students fare in professional life.

The Student Fund has also built in incentives to align student choices with development needs of the country by introducing more generous support for students enrolling in priority programmes [p], as identified in the Base Fund.

Finally, as students pay part of their tuition (or have it financed in part or totally by the Student Fund), it is expected that they will feel more entitled to put pressure on the

institution for better quality and more relevant programmes as well as more learning support facilities.

The Student Fund is a funding stream that merely re-channels state funding through the student, and therefore does not supply extra money from the state, while it attracts extra private funds into the higher education public funding system through the cost sharing policy. The Student Fund therefore does not provide scholarships as is currently understood in Mozambique. The distinction has to be made between Student Fund scholarships as a tuition or cost participation waiver; and other scholarships ('bolsas') that provide subsistence funding to the student.

It was duly raised during the EFES steering committee meetings that the fragmented situation of subsistence scholarships needs consolidation under a distinctive category of social scholarships ('bolsas sociais'), possibly also managed by IBE. The implementation of the Student Fund based on socioeconomic targeting could actually provide an avenue for automatically adjudicating subsistence funding to students classified in the lowest socioeconomic quintiles of the Student Fund targeting mechanism. In the same vein, Student loans were discussed as an additional instrument for those students who wished to finance their cost sharing with a loan. This facility would be aimed at students from the upper socioeconomic quintiles who have the money to fund their studies (and who would qualify for a loan from a bank), but who wish to defer expenditure until after graduation and spread cash outlays over time during their professional lives.

It was however agreed to focus first on the Student Fund in support of EFES, before tackling complementary financing mechanisms such as these subsistence scholarships and student loans.

The Design and process

The design of the Student Fund is informed by the policy objectives of (1) equity of access and financial sustainability, (2) enhancing transparency and accountability, and (3) aligning student choices with development priorities.

New policy instruments have been designed and tested in order to operate the student Fund in achieving these objectives.

Central to socioeconomic targeting is the Eligibility index and the associated student questionnaire aimed at assessing the socioeconomic status of the student.

A second set of policy instruments such as the average annual expenditure per student policy, the cost-sharing base, and the cost-sharing scale, make up the mechanisms used to fund students.

The Eligibility Index (ECI)

In order to make cost sharing progressive, the Eligibility Index (ECI) was devised. The Eligibility Index is a means testing formula that provides a socio economic score. Based on this score, the student is placed in one of five quintiles on a scale from wealthiest to less wealthy. The development of the ECI formula was commissioned by the Ministry and developed by Mozambican consultants funded by the World Bank.

More in particular, as described in the ECI development study¹⁴ the eligibility criteria index aims to assess the ability of students or their families to share in the expenses of higher education based on their socio-economic characteristics. Based on econometric methodology it assesses the relationship between real consumption per capita (the dependent variable) and a set of explanatory variables such as demographic characteristics, employment, housing, ownership of assets, education, and livestock.

The mathematical formula weights predictors of consumption per capita with categorical variables to control for regional and provincial heterogeneity. Estimations were performed based on the 2008/09 Household Budget Survey known by its acronym of IOF 2008/09.

Evidence from regression analysis leads to a number of conclusions:

¹⁴ See detailed description in Annex 2: The ECI development study

1. **Demographic characteristics** such as household size, gender of the head of household, number of children and aged persons in families affects significantly per capita consumption. Large family sizes dilute the gains of labour and property income, affecting negatively per capita consumption mainly in rural areas. Households populated by many children and aged persons tend to have lower consumption per capita. In addition, presence of women headed household leads to substantial increments in consumption per capita in urban areas than in rural areas;
2. **Employment** in the secondary and tertiary sectors leads to substantially higher gains in per capita consumption than employment in the primary sector, but the impact is only significant in rural areas. The regressions results for various quintiles suggest that working in secondary and tertiary sectors affects positively and significantly the level of consumption in the first and third quintiles, whilst its contribution in other quintiles is insignificant;
3. **Education level:** there are significant gains in per capita consumption in households headed by people that achieved higher level of education. This means that accumulation of human capital, tantamount to one more year of schooling leads to improvements in standards of living. Nonetheless, improvements differ substantially across regions and quintiles; and
4. **Asset ownership:** there is strong evidence corroborating the role of assets ownership and housing conditions in individual welfare. Most families either in rural or urban areas, tend to increase the stock of assets as they get richer and assets acts as smoothing devise of consumption during periods of adverse shocks and crisis.

Simulation results of the eligibility criteria index suggest that the rank of students is determined by the overall score with respect to socio-economic characteristics, but as the differences in scores gets smaller, the student's rank is largely affected by regional weighting factors.

Socioeconomic targeting based on the eligibility criteria index is therefore heavily dependent on the accuracy of information provided by students. This calls for mechanisms to verify the authenticity of delivered information taking into account supplementary information collected from visits to the homes of candidates, community's

12th year secondary school students who intend to continue with higher education the following year. This approach would provide a full socioeconomic profile of all potential entrants to higher education in a given year and allow plenty of time for collecting the information, processing the questionnaires and placing the prospective students in their respective ECI. It would also give prospective students certainty about their level of cost sharing before they would apply for a place at a public institution.

If on the other hand, the questionnaire is introduced only to students who have already been accepted to a public institution, then the number of respondents will be greatly reduced requiring less processing capacity. However, as payments to the Institution have to be made after acceptance and before the start of the academic year, this solution puts the introduction of the questionnaire very late in the process, drastically shortening the time available for collecting the data, processing the questionnaires and placing the students in their respective ECI. In addition, it limits the collection of information to students that have succeeded to pass the entry exams only, and severely reduces the spectre of information that can be obtained on potential university entrants. This may increase the risk that policy makers become blindsided to the socioeconomic status of those students that do not pass the entry exams as they lose track of them.

Scenarios exploring the roll out of the questionnaire (1) incrementally by geographical area, (2) limiting it to students in priority programmes only, or (3) eliminating the boundary between public and private institutions, were abandoned in the design phase, because;

1. It quickly transpired that only nationwide initiation would provide comprehensive information and avoid equity problems between those in and those out of the chosen geographical areas. As students would also be likely to enrol with a public HEI outside their own geographical area, the geographic constraint would not hold in practice.
2. Scenarios constraining scope to priority area students only, would (a) put the burden of ECI disclosure only on those students that align with priority area, (b) limit the scope for increasing the cost sharing base in the future as it would quickly outrun the means of unfunded non priority area students, (c) compromise the essence of the long term shift towards indirect funding, (d) blind side policymakers to the socioeconomic information of more than half the student

population in the public sector potentially cumulating a bias in the ECI over time, and (e) forgo a great opportunity to pull all families with students in the public Mozambican Higher Education system into the tax base through NUIT registration.

3. It was not deemed politically acceptable to include students at private institutions in the first stages of the Student Fund, as it would imply the flow of public funds towards private institutions at a time when the public system is already severely underfunded. In addition, for coherence with the other funding streams it was considered that the Student Fund should only fund students attending one of the twelve public institutions included in the Base Fund. It was however contemplated that as the reforms mature and the institutions adjust to the new rationale, the funding model could gradually be expanded to include private institutions based on a number of conditions. If for instance, the public system should not be able to provide enough places for priority area programmes, students attending those programmes in private institutions, which fulfil all criteria, could be eligible for funding to a maximum of 100% of the cost share basis if he or she is placed in the lowest quintile of the cost sharing scale. These students however, would still face the challenge of funding the rest of the tuition fee at the private HEI by their own means.

The question of introducing the questionnaire on paper or on line was also a very pertinent one in the Mozambican context. Given the still limited connectivity in many parts of the provinces, the paper-based questionnaire would seem the safest option. However, it quickly dawned that this could create a reality of tens of thousands of paper based applications and questionnaires that would need to be officially received and entered manually in the Student Fund information system by IBE. The completeness of the questionnaire and the accuracy of the information provided by the applicants would not be verifiable beforehand, creating risks of incomplete or erroneous processing afterwards. In order to remedy such problems, the paper-based questionnaires could be verified at the point of submission, but this would slow down submission and negatively affect the public reception of the new model as long lines of applicants could appear all over the country. Overall, the paper-based method would require a surge of capacity in terms of infrastructure and human resources, which IBE could not deliver at such peak

moments. These implementation problems could quickly turn into public frustration, and create growing political risk.

The alternative was to introduce the questionnaire online and overcome limited connectivity for applicants by providing access to the Internet in school and university IT labs, and assist applicants while they complete the questionnaire. The online questionnaire application can automatically verify completeness before the applicant can move on to the next screen. It can also limit input errors with standard answers in pop-up multiple-choice windows and verify ID and NUIT number formats.

After evaluation of the options, it was considered that since processing applications online offers many advantages provided that the connectivity problem can be resolved. With NUFFIC financing and support from CHEPS consultants, IBE commissioned the development of an online software application with automatic ECI sorting of applicants and a database management system for managing applications. Given the advantages of collecting information at 12th year school level as laid out above, a first version of the application was piloted in 4 schools in order to test the questionnaire, gauge connectivity, and estimate what kind of support would be needed for applicants to complete the questionnaire on line.

Average annual expenditure per student policy

In order to change the perception that public higher education has no cost, it was key to establish an average annual expenditure per student policy. Based on macro level calculations and on detailed expenditure studies in UEM in 2006¹⁵, an annual average expenditure policy of 2,500 USD per student was established and put forward in the Operational Plan 2007-2012. This amount was tested again in 2011, and while it had eroded because of faster growing student numbers than budget increases in the public institutions, it could still be used as a benchmark figure for EFES.

Whereas on the supply side the Base Fund foresees in different funding rates for the institutions dependent on the cost of each programme by means of the [a] [b] [c] specific policy levers, it was important on the demand side to dissociate cost levels from student choices in order to safeguard equity of opportunity and freedom of student choice based on merit and not on cost.

¹⁵ See Annex 4: An Analysis of Unit Costs at Mozambique's Eduardo Mondlane University, 2003-200 by Peter R. Moock Revised, May 6, 2007

The Student Fund uses the 2,500 USD as the average annual expenditure per student policy regardless of study choice.

This policy is also the reference for defining the cost-sharing base for all students.

The Cost-sharing base

In effect, the implementation of the Student fund involves setting an implicit tuition fee, which can be partly or fully funded by the Student Fund depending on socioeconomic status of the applicant. For political reasons however the term ‘tuition fee’ was not preferred, instead the discourse revolved around ‘cost sharing’.

The cost-sharing base is the proportion of the average annual expenditure per student that will be used to define cost sharing. Based on a number of simulations and conversations with the Vice Minister and the IBE team in the period 2011-2014, it was decided to introduce cost sharing progressively by starting low and increasing the cost-sharing base over time. As a start, 500 USD was established as a reasonable basis for cost sharing. This means that of the total average expenditure per student the government would fund 2,000 USD for everyone, and put up the remaining 500 USD as a base for sharing costs to a degree based on socioeconomic targeting. Even if the student pays the full amount of the cost-sharing base, this still only amounts to 20% of the average annual expenditure per student. In this way, all students will pay a share in line with his/her socioeconomic profile according to a cost sharing scale.

Cost sharing scale

The cost sharing scale is the scale of cost participation that matches the respective socioeconomic quintiles from poorest to richest. A more favourable scale is used for Priority Area students than for non-priority area students.

Through the application of the ECI formula based on the information in the questionnaire, the student will be placed in the appropriate socioeconomic quintile.

The distribution of students across the five quintiles is subject to being calibrated based on the socioeconomic profile of the potential student population resulting from the responses to the questionnaires. While this has been proven to be difficult so far, it was estimated as a working hypothesis in the design phase that about 10% of students would fall in the highest socioeconomic quintile and hence pay the full equivalent of 500 USD.

In addition to the Base Fund [n/np] specific policy levers on the supply side, the Student Fund foresees in complementary [n/np] measures on the demand side to better align human capital formation with the development needs of the country.

As shown in the figure above, the cost sharing policy applies Student Fund support fully for students in priority areas [p], while it does so only partially for students who enrol in non-priority [np] courses. Indeed the cost sharing scale for students in non-priority programmes [np] is less generous as the Student Fund finances to only up to 50% of the cost-sharing base, even for the students of the most disadvantaged socioeconomic group in the first quintile.

Apart from strengthening the alignment between human capital formation and national development needs, this policy also provides a strong stimulus for students from disadvantaged socioeconomic backgrounds to take up studies in areas for which it is expected that there will be jobs. In turn, this stimulates social mobility towards a growing middle class.

Figure 15. The priority areas stimulus of the Cost sharing scale

Cash Flows and budgeting processes

As the Student Fund represents a re-channelling from direct input funding of the institutions (by MEF) towards indirect funding (through the student), this part of public funding for higher education needs new budgetary arrangements between MEF and IBE. Based on the ICE database IBE will be able to estimate the funds it will need to finance the students in the lower quintiles of the cost sharing scale. In line with these estimates, IBE will make a request to MEF for funding of the Student Fund.

It is anticipated that IBE will process the applications and communicate to MEF the amounts that need to be transferred for each student to the institution where the student enrolls, and that MEF makes those transfers directly to the institution. Another option would be to transfer a total estimated budget to IBE who in turn transfers it to the institutions, but this would multiply the number of transactions and require IBE to set up additional capacity for receiving funds from MEF and distributing them to the institutions, whereas the capacity to manage such transactions already exists at MEF. IBE will therefore function as the manager and gatekeeper of socioeconomic targeting, rather than as a payment mechanism.

Students will pay their own share directly to the institution where they enrol, while IBE will (through MEF) complement the payment to the institution with the Student Fund share. As a result, the institutions will receive 500 USD for each student whether it comes from the student alone, partially from the Student Fund and partially from the student or from the Student Fund only, in line with the application of the ECI and [p/np].

Calibrating the ECI and cost sharing levels

Simulating the effects of cost sharing

In order to estimate the effects of cost sharing on the overall budget, in 2014 CHEPS consultants simulated the student progression and cost sharing levels based on a set of assumptions, which still need to be tested on the real socioeconomic profile of the student population and on real data projections from the institutions under the Base Fund. Nevertheless, the exercise is instructive for understanding the dynamics and effects of introducing cost sharing.

			2016	2017	2018	2019	2020
Parameters							
Growth enrolment rate %			4%	4%	5%	5%	5%
New enrolments Pub + PRV			26.406	27.496	28.833	30.215	31.642
New enrolment Public SP cenario 2			17.983	18.560	19.318	20.063	20.820
Number of students Public Priority Areas			7.193	12.459	16.952	21.217	24.892
Year 1	% of new enrolments	40%	7.193	7.424	7.727	8.025	8.328
Year 2	progression rate	70%	0	5.035	5.197	5.409	5.618
Year 3	progression rate	80%	0	0	4.028	4.157	4.327
Year 4	progression rate	90%	0	0	0	3.625	3.742
Year 5	progression rate Master	40%	0	0	0	0	2.877
Number of students Public Non Priority A			10.790	19.767	28.268	36.708	42.513
Year 1	% of new enrolments	60%	10.790	11.136	11.591	12.038	12.492
Year 2	progression rate	80%	0	8.632	8.909	9.273	9.630
Year 3	progression rate	90%	0	0	7.768	8.018	8.346
Year 4	progression rate	95%	0	0	0	7.380	7.617
Year 5	progression rate Master	60%	0	0	0	0	4.428
Cumulative enrolments new model Public			17.983	32.226	45.220	57.925	67.405
Cumulative enrolments new model total			26.406	47.901	67.949	88.128	101.250

Figure 16. Simulated Student Progressions 2016-2020

As shown in the figure above, the first assumption is that students already in the system will not be subject to cost sharing so they can continue their programmes until graduation under the existing system. Therefore, the simulation only takes into account the new students entering the system under the cost sharing policy. The second assumption estimates student numbers based on scenario 2 of the Strategic Plan 2011-2020. The third assumption subdivides the students in priority [p] and non-priority [np] programmes, with more students enrolling in non-priority courses than in priority courses. The fourth assumption estimates different progression rates for priority and non-priority students, as stated in the yellow column of the figure above. If the cost sharing policy were initiated by 2016, more than 100,000 new enrolments would cumulate by 2020. As stated, these assumptions are hypothetical and need to be revised with real data.

Expenditure per student \$		2500	2500	2500	2500	2500
Cost sharing base \$		500	500	500	500	500
Proportion of expenditure per student policy %		20%	20%	20%	20%	20%
Student contribution ECI %	Non Priority Areas					
ECI Q1 % contribution	50%	250	250	250	250	250
ECI Q2 % contribution	50%	250	250	250	250	250
ECI Q3 % contribution	75%	375	375	375	375	375
ECI Q4 % contribution	100%	500	500	500	500	500
ECI Q5 % contribution	100%	500	500	500	500	500
Student contribution ECI %	Priority Areas					
ECI Q1 % contribution	0%	0	0	0	0	0
ECI Q2 % contribution	25%	125	125	125	125	125
ECI Q3 % contribution	50%	250	250	250	250	250
ECI Q4 % contribution	75%	375	375	375	375	375
ECI Q5 % contribution	100%	500	500	500	500	500

Figure 18. Cost sharing schedule per student

The table in the figure above shows the cost sharing levels per student on a fixed cost-sharing basis of 500 USD, representing 20% of the average expenditure per student policy. The simulation also reflects the different policy for priority and non-priority students.

Parameters		2016	2017	2018	2019	2020
Student contribution ECI \$	NPA	3.776.334	6.918.590	9.893.839	12.847.924	14.879.471
ECI Q1 % of students	25%	674.345	1.235.463	1.766.757	2.294.272	2.657.048
ECI Q2 % of students	25%	674.345	1.235.463	1.766.757	2.294.272	2.657.048
ECI Q3 % of students	20%	809.215	1.482.555	2.120.108	2.753.127	3.188.458
ECI Q4 % of students	20%	1.078.953	1.976.740	2.826.811	3.670.836	4.251.278
ECI Q5 % of students	10%	539.476	988.370	1.413.406	1.835.418	2.125.639
Student contribution ECI \$	PA	3.596.509	3.711.926	3.863.676	4.012.578	4.164.051
ECI Q1 % of students	25%	0	0	0	0	0
ECI Q2 % of students	25%	224.782	389.343	529.754	663.029	777.871
ECI Q3 % of students	20%	359.651	622.948	847.607	1.060.847	1.244.593
ECI Q4 % of students	20%	539.476	934.422	1.271.410	1.591.271	1.866.889
ECI Q5 % of students	10%	359.651	622.948	847.607	1.060.847	1.244.593
IBE contribution	Priority	2.112.949	3.659.821	4.979.691	6.232.477	7.311.983
ECI Q1 % of students	25%	899.127	1.557.371	2.119.017	2.652.118	3.111.482
ECI Q2 % of students	25%	674.345	1.168.028	1.589.263	1.989.088	2.333.612
ECI Q3 % of students	20%	359.651	622.948	847.607	1.060.847	1.244.593
ECI Q4 % of students	20%	179.825	311.474	423.803	530.424	622.296
ECI Q5 % of students	10%	0	0	0	0	0
IBE contribution	Non Prior	3.776.334	6.918.590	9.893.839	12.847.924	14.879.471
ECI Q1 % of students	25%	674.345	1.235.463	1.766.757	2.294.272	2.657.048
ECI Q2 % of students	25%	674.345	1.235.463	1.766.757	2.294.272	2.657.048
ECI Q3 % of students	20%	809.215	1.482.555	2.120.108	2.753.127	3.188.458
ECI Q4 % of students	20%	1.078.953	1.976.740	2.826.811	3.670.836	4.251.278
ECI Q5 % of students	10%	539.476	988.370	1.413.406	1.835.418	2.125.639
Total Cost sharing		7.372.843	10.630.517	13.757.515	16.860.503	19.043.522
Total IBE		5.889.283	10.578.411	14.873.530	19.080.401	22.191.454
Total IBE + Cost Sharing		13.262.127	21.208.928	28.631.045	35.940.904	41.234.976

Figure 17. Cost sharing in figures

Applying the cost-sharing schedule to the simulated student flows, the table in the figure above provides an overview on the different contributions of both the students, and of the Student Fund (IBE) in the cost-sharing model. It is assumed that only 10% of students will

fall in the highest socioeconomic quintile (Q5), 20% of students in each of the middle Q2 and Q3 quintiles, and 25% of students in each of the lowest Q2 and Q1 quintiles. By 2020 the model shows an annual student contribution of about 19M USD matched by about 22M USD state funding that would be channelled indirectly to the institutions through the Student Fund.

The table in the figure below summarises the effects of the cost sharing policy on the proportions between direct and indirect funding. In addition, here a number of assumptions were introduced in order to gauge effects. The total Budget (100%) used in this simulation equals the number of students multiplied with the 2500 USD average expenditure policy and the Institutional Fund proportion to the total EFES budget is kept fixed at 10%, in order to see the dynamics between the Base Fund and the Student Fund.

Parameters	2016	2017	2018	2019	2020
Growth enrolment rate %	4%	4%	5%	5%	5%
Expenditure per student \$	2500	2500	2500	2500	2500
Cost sharing base \$	500	500	500	500	500
Proportion of expenditure per student policy %	20%	20%	20%	20%	20%
Total Cost sharing	7.372.843	10.630.517	13.757.515	16.860.503	19.043.522
Total IBE	5.889.283	10.578.411	14.873.530	19.080.401	22.191.454
Total IBE + Cost Sharing	13.262.127	21.208.928	28.631.045	35.940.904	41.234.976
Total cost new system	44.956.362	80.565.915	113.050.626	144.813.243	168.511.581
30 MTN (000)	1.348.691	2.416.977	3.391.519	4.344.397	5.055.347
% Indirect Funding	30%	26%	25%	25%	24%
% Base funding	61%	64%	65%	65%	66%
% Institutional Funding	10%	10%	10%	10%	10%
Total Cost sharing % Budget by all students	16%	13%	12%	12%	11%

Figure 19. Simulated effects of cost sharing on EFES proportions

With a fixed cost-sharing base of 500 USD, the relative share on indirect demand side funding will fall from 30% to about 25% by 2020 with respect to the direct supply side Base fund and Institutional funding streams.

	2016	2017	2018	2019	2020
Parameters					
Growth enrolment rate %	4%	4%	5%	5%	5%
Expenditure per student \$	2500	2500	2500	2500	2500
Cost sharing base \$	500	500	750	750	850
Proportion of expenditure per student policy %	20%	20%	30%	30%	34%
Total Cost sharing	7.372.843	10.630.517	20.636.273	25.290.754	32.373.987
Total IBE	5.889.283	10.578.411	22.310.295	28.620.602	37.725.472
Total IBE + Cost Sharing	13.262.127	21.208.928	42.946.567	53.911.356	70.099.459
Total cost new system	44.956.362	80.565.915	113.050.626	144.813.243	168.511.581
30 MTN (000)	1.348.691	2.416.977	3.391.519	4.344.397	5.055.347
% Indirect Funding	30%	26%	38%	37%	42%
% Base funding	61%	64%	52%	53%	48%
% Institutional Funding	10%	10%	10%	10%	10%
Total Cost sharing % Budget by all students	16%	13%	18%	17%	19%

Figure 20. Sensitivity analysis of the cost-sharing base

By way of sensitivity analysis, the same simulation with an increasing cost-sharing base up to 850 USD between 2016 and 2020 would stabilise the proportion of indirect funding to around 40% of the total EFES funding streams. This scenario would also boost private contribution to the public higher education system to 32M USD.

The EFES direct and indirect funding mechanisms provide important incentive instruments for steering the higher education system. The relative proportions of the EFES funding streams imply an optimum in the balanced policy mix of incentives to achieve the overall higher education policy objectives.

The central role of data for the EFES – Student Fund

The Student Fund is heavily dependent on reliable and high quality data to allow for the establishment of the socioeconomic situation of each student. The questionnaires are intended to provide essential data for the application of the ECI formula and placing the student in the quintile that corresponds to his/her socioeconomic profile. IBE established the software application to collect and manage data related to ECI and to process the applications. The ECI formula is embedded in the software application and places the student in the respective quintile. The calibration of the quintiles is made based on the socioeconomic profile of the target population.

After adjustments to the software interface and functionalities, the EFES Steering Committee agreed in April 2015 that IBE launch a full dry run by rolling out the

questionnaire nationally to all 12th year students in Mozambique. The aim was to test the feasibility of collecting the information online through IT labs in the schools for those students who did not have their own connectivity; test the robustness and reliability of the software the face of a surge of online applications, and also to have a database with enough information to draw up a socioeconomic picture of the 12th year student population so that the quintiles generated by the application of the ECI formula could be adequately calibrated.

IBE communicated the exercise with a letter to the Provincial Directorates of the Ministry of Education and provided hands-on training and support so that the directorates could provide support and assistance to the schools.

By the end of 2015 the national pilot yielded about 4,000 applications only, representing about 10- 20% of the total potential applicants. Of those applications, almost none was duly completed and most importantly almost all applicants omitted the asset and income information needed for socioeconomic targeting, nor did they communicate a NUIT.

In its evaluation of the results IBE found that connectivity could be overcome there where solid commitment of IT labs was being engaged, but it had to recognise that there was a lack of trust in the intentions of the government, and that the low response rate and incomplete returns did not allow for building a representative picture of the socioeconomic profile of the potential entrants to higher education, nor did it ensure whether the software could handle thousands of simultaneous online applications at once.

After evaluating this result, the EFES steering committee concluded that the implementation of the Student Fund still needed resolving many issues, such as the need for a clear political message backed up with an adequate communication strategy, and a review of the capacity of IBE in light of what would be required to ensure a successful implementation of the Student Fund. It was also deemed necessary to develop a detailed manual explaining the role of IBE and the Student Fund in EFES; the purpose of the questionnaire and an explanation of how the means test works together with the marketing and communication steps to bring the questionnaire to the attention of the potential applicants; the division of responsibilities between the MEF, IBE, the Institutions and the schools and the channels of communication and reporting; procedures for validating the NUIT and ID numbers; developing risk indicators and formulating sanctions and consequences for wilful false information; and finally outlining the processing

methodology of the questionnaires and funding procedures at IBE itself together with a detailed implementation calendar. In addition, the EFES Steering Committee required a review of the ECI formula in order to establish if more detailed income information needed to be included.

The Steering Committee concluded that the Student Fund would not be ready for launching at the same time as the Base Fund for the 2016-2017 Budgeting cycle. This meant that the Base Fund would be rolled out first and that it would include the Student Fund budget (i.e. 20% of the total higher education budget for the institutions), until the Student Fund would be ready to start up the indirect funding stream.

Risks and opportunities

Risks

Because of its direct interaction with the public, the Student Fund harbours higher political and higher implementation risks than the Base Fund. These political and implementation risks are interrelated in feedback loops.

In order to prepare the public and obtain civic support, a clear political message must provide a framework for implementation. In turn, implementation must be meticulously prepared and executed to avoid those frustrations from poor implementation by government services spill over into political stirrings. Nevertheless, as inevitably, this line between the purpose and the means of innovative policies blurs in the public eye, courageous and patient political leadership is required to stay the course and safeguard public support with consistent messaging and competent implementation.

Politically, it should be made clear that in order to benefit from publicly funded higher education, students and the members of the household to which they belong, must register for NUIT and pay taxes according to provisions of the tax legislation in Mozambique. In addition, asset and income transparency is required in order to establish cost-sharing levels for each student. If cost sharing is according to ones means as tested by the ECI formula, the system can be perceived as fair and equitable. Well-off families contribute to the system with their share of the cost, while poorer families may benefit from the Student Fund, which may eliminate part or all of the cost sharing for them.

In return for such transparency from the citizen, the State will also have to be transparent in its use of tax money, and be able to show how taxes are allocated for the benefit of its

citizens. As such, the implementation of the Student Fund contributes to trust building between the state and its citizens, and in making the allocation of resources more fair and efficient.

The case for careful political communication is therefore crucial for sustaining this narrative and for avoiding that opposing political forces paint the initiative as a raise of tuition fees across the board. In many countries tuition fee raises do indeed have a history of becoming captive to rhetoric of injustice as opposed to the perceived ideal of tuition-free higher education. As was already laid out, it is the perverse effects of tuition-free public higher education in the face of exponential growth of demand that has led to raising the bar of entry exams which favours students coming from better schools while increasing barriers for those of less advantageous socioeconomic backgrounds. It is also these perverse effects that the government wants to remedy with the implementation of EFES.

As it turned out during the first national dry run, there was no high profile communication campaign from the government regarding EFES or the Student Fund more in particular. The Student Fund pilot was launched at an administrative level and in a political vacuum in terms of public communication. In addition, preparations for implementation were made late and without the necessary detailed instructions and explanations, it needed. Despite intensive support by the CHEPS consultants with scenario planning and checklists, and despite the goodwill and full commitment of its staff, IBE did not have the capacity and the clarity of purpose to follow through accordingly. In part, this was also due to the change of government and the subsequent lack of clarity surrounding the future of IBE as an institution, as well as the question to which Ministry IBE would respond under the [2015-2019] government mandate.

The capacity of IBE in anticipating and strategizing, developing processes and procedures, and deploying sufficient staff with adequate qualifications is definitely key in implementing the Student Fund with the competence required in order to avoid implementation risk and potential spill over in political risk.

The question of making the student questionnaire compulsive for all students wishing to enter the Public Higher education system, or allowing automatic placement in the higher quintile for non-respondents is pending to be resolved.

Opportunities

As the growing proportion of the Student Fund with respect to the Base Fund, stimulates a shift from direct to indirect funding, higher education public finance supplemented with private funding will become more sustainable in the face of growing demand. With the principle of the money following the student, and rewarding student choices in priority programmes the Student Fund also offers great opportunities for making higher education more responsive to the needs of the students and of the Mozambican economy and society at large.

As the Student Fund database starts to consolidate and socioeconomic profiling of the student population becomes a reality, future integration with the registry-based databases of the Base Fund will strongly enhance the capacity for enriched policy studies and informed decision making in the regulation of higher education.

The recent government decision to consolidate all types of scholarships in IBE, offers the opportunity to build its expertise and excellence and diversify the portfolio of a variety of student financing instruments such as the Student Fund, but also student loans and social support bursaries.

Donors can find in IBE an opportunity to support the development of mechanisms for allocating and managing student funding instruments with internationally accepted accountability and transparency standards. They can also decide to partner with government in financing these student-funding instruments for cost sharing or social support scholarships in contribution of making higher education more accessible and equitable for all.

The implementation of these instruments in coordination with the MEF also contributes to speeding up the uptake of NUIT registration and broadening the tax net to the benefit of all.

A framework example for analysing, monitoring, and evaluating EFES policy outcomes

The policy framework

In order to gauge the effects of EFES it is important to use a framework for policy analysis, monitoring and evaluation. As an example we put forward in the figure below a model that combines policy outcomes with risk for EFES, to help decision makers to come to grips with the complex set of trade-offs in a coherent and consistent way.

Figure 21. Policy analysis model

The model shows eight desired policy outcomes, each on a scale between high and low. The green circle shows the zone that is entirely consistent with the overall policy objectives; Equitable access is high, transparency is high, cost sharing is equitable, the relevance of programmes is high, the responsiveness of the system is high, financial sustainability is high, and finally, both implementation risk and political risk remain low. This is where all policy outcomes are being achieved at the same time and the financial reform is right on target.

The orange circle is where the policy objectives are only achieved moderately, and the red circle shows the danger zone where they are not being achieved at all.

The current situation

When we project the current situation on the model with bullets, coloured according to achievement of desired policy outcomes we see that only implementation risk is in the green zone, as the procedures of the current system are well established and expectations are adjusted to current realities. Political risk is moving into the orange zone because of the weak performance of the current system with respect to the policy outcomes, which have all entered into the red zone.

Figure 22. Policy analysis model of the current situation

The build-up of frustrations of a growing middle class that finds that the higher education system is not responding to the aspirations they have for their young, and of the lower classes seeking upward mobility, spell increasing political risk and motivate the government for implementing change.

In the real world implementation of new policies will rarely find itself exactly on target it is more likely that at any given time some policy objectives will be met, some will be partly met and others will be in the danger zone, potentially triggering a rise in political and implementation risk.

Indeed, when projecting the policy outcomes from EFES on this model, we will find a tension between the policy objectives that cannot be entirely resolved. While as a result the outcome of EFES will improve the situation significantly, it will not lead to a perfect situation where all policy objectives are fully achieved in a climate of low implementation and policy risk.

There is no perfect achievement because the desired policy outcomes are conditioned by a set of drivers. These drivers affect each other and may stand in tension across the different policy objectives.

- The geographical spread of institutions, the level and income sensitivity of cost sharing, the gender sensitivity of the system, and the freedom of study choice improve equitable access.
- Disclosure of HEI finances and student family income to the policy makers, as well as communication and governance of the system improves transparency. It affects the effectiveness with which the reforms can be implemented and hence reduces implementation risk.
- Progressive cost sharing and the income sensitivity of the ECI improve equitable cost sharing and affect financial sustainability and equitable access. Applying a lower cost sharing scale to students within priority areas than to students out of priority areas boosts alignment and relevance of programmes.
- Performance based financing to the HEI and student funding favouring priority areas both improve the relevance of programmes and affect the overall responsiveness of the system.
- More indirect funding and more performance based funding improve the relevance, efficiency, quality and service levels boosting the responsiveness of the system and its alignment with policy objectives.
- More cost sharing, more efficiency and slower growth improve financial sustainability of the system but may adversely affect equitable access objectives.

- Implementation risk increases with lack of transparency, fast growth of the system, lack of experience, institutional weakness, precipitating implementation, high cash volumes, and political resistance. Well-designed piloting and preparation, institution building, and persuasive leadership can mitigate a number of these risks.
- Political risk increases with lack of equitable access and equitable cost sharing, increased implementation risk, and lack of transparency. It is mitigated through effective communication, management of perceptions and consistent and competent execution.

The policy outcomes of EFES

In the figure below the model is now completed with square bullets representing a possible set of outcomes for the implementation of EFES. It does represent an improvement for all policy outcomes; especially for relevance of programmes, responsiveness of the system, and transparency, which would all move into the green area, and moderate improvements for equitable access, and cost-sharing and financial sustainability.

Figure 23. Policy analysis model of potential EFES policy outcomes

As the reforms engage substantial change, the risk indicators shift in the opposite direction but will settle to their natural state as the reforms provide results. While this projection for 2020 represents a substantial improvement for higher education in Mozambique, bearing in mind that the set of desired policy outcomes in this model harbours some irreconcilable trade-offs, some additional measures can be taken to support further consolidation towards the center.

In addition, the inevitable pressure of the change process on the risk indicators can be alleviated through a number of managed processes.

Equitable access:

Geographic equity improved drastically over the last decade with the expansion of the system into the provinces. Furthermore, the ECI will favour students from poorer regions and backgrounds. The more favourable cost sharing scale for students within the priority area than those outside is a conscious policy trade-off away from equity in favour of policy alignment with relevance of programmes. On the other hand, the 0% cost sharing for the lowest quintile of priority area students represents strong affirmative action towards the poorest in the system provided they align to the priority areas. However, the score could be further improved with three initiatives:

1. **Gender:** Only one third of students in the priority areas are women and the policy could be seen as strongly favouring the traditionally male professions. Adjusting the ECI favouring women or creating favourable adjustment for women to the already advantaged priority cost sharing scale. Other measures such as building a new image to eliminate gender bias from professions traditionally seen as male can be mobilised.
2. **Educational background:** The lower cost-sharing priority areas will be less accessible to lower income students as their schooling background may disqualify them from entering these programmes. Increasing the chances of meeting the entry requirements could be achieved through incentives for HEI to invest in upgrading secondary school graduates, or by running a government lead initiative to do so.
3. **Enrolment fee:** To reduce disproportionally effect of the enrolment fee it can be included in the student financing for the lower quintiles.

These measures require extra funding which in turn will have to be balanced with financial sustainability requirements.

Transparency:

This high level of transparency policy is required for successfully implementing the reforms.

1. Student resistance to disclosing a high degree of personal information and NUIT registration may create implementation and political risk. An information campaign on social responsibility coupled with unwavering application of the regulations will support acceptance for the obligation to disclose family incomes and to register for NUIT.
2. In addition, the HEI may resist the disclosure of all generated income and external financing. By counting all non-direct state funding towards self-generated funding, Public HEI have an incentive to disclose in order to meet the 66% threshold for financial autonomy requirements, providing more freedom of allocation of resources and less need for control from the state.
3. The state may however face calls to improve its own transparency in using taxpayer money and donor funding.

Equitable cost sharing:

The cost-sharing base is equal for all students, while the lower, more favourable cost sharing scale applying to priority area programme students represents a conscious policy trade off in favour of policy alignment with programme relevance. This area can be gradually improved by

1. Fine-tuning the policies on the growing body of real student family income data
2. Adjusting the ECI.
3. Enrolment fee: To reduce disproportionally effect of the enrolment fee it can be included in the student financing for the lower quintiles.

Relevance of programmes

The combined policy of performance financing and priority area oriented student funding will positively affect alignment with priority areas. The trade off with equitable study

choice is seen as politically acceptable given the development challenges the country faces and the mismatch between skill supply and labour demand it is suffering.

Responsiveness

The roadmap simulation provides a view towards achieving about 40% of Public HEI funding being channelled through the student by 2020. This is a 'game changer' and should positively influence institutional responsiveness towards the student in terms of service and quality levels. Performance based base funding to boost graduation rates for priority areas will increase efficiency, while project finance for priority areas through the institutional fund should move HEI towards closer alignment with government development policy objectives. Responsiveness can be improved by

1. Moving faster to critical mass in indirect funding so to trigger the culture change at HEI and turning students from cost into client.

However given the other policy objectives and trade-offs, it seems difficult at this stage to contemplate achieving the 40% indirect funding threshold faster than 2020 based on the projected student numbers.

Remains the caveat that if demand keeps growing unabated the HEI may take students for granted regardless of indirect funding. This effect could last until supply and demand of higher education find equilibrium.

Financial sustainability

According to the simulation, by 2020 close to 20% of public expenditure in higher education will be covered by cost sharing. This proportion can be somewhat bigger or smaller depending on student stratification resulting from real socio economic data generated by the surveys. Following the current simulation the cost sharing base grows in importance, and the ECI puts relatively few students in the top 2 quintiles where sharing is highest. On the demand side this score could be improved by

1. Growing the cost base beyond the maximum of 800\$ envisaged by 2020
2. Making the cost sharing scales more stringent so a higher proportion of students fall in upper quintiles

Given the socio economic make up of Mozambique and the political risks involved it will be difficult to boost this proportion significantly even in the medium term.

On the supply side the score could be improved by

2. Scaling the per student expenditure policy down from the 2500\$, while compensating for the proportional effects it has on the cost sharing base
3. Speed up HEI performance based financing coupled with quality assurance, to boost student progression and drastically improve efficiency in the system

Most probably financial sustainability will remain precarious for the foreseeable future given the many investments that still have to be made in the system to cope with the growth of demand and improvement of quality.

Outlook

The model presents an example of how to develop an overview of the policy trade-offs outcomes and risks. Given that it was devised in 2011, early during the preparations for the implementation of EFES, the model is due for an update incorporating the developments that have taken place in fleshing out and testing the three funding stream of EFES. This will result in an updated set of policy indicators. This update needs to be aligned with the Hemis Framework and also with CNAQ criteria in order to include the quality dimension explicitly in monitoring and evaluating the policy outcomes of EFES.

For each of the indicators in the model a set of underlying scorecards with sub indicators need to be developed for establishing the base line, and subsequent monitoring cycles.

Conclusions and recommendations

Risks and opportunities

Like many reforms, EFES presents policy makers and stakeholders with difficult trade-offs and political risk. However, the status quo in response to the dynamics of a developing society with a growing middle class expressing strong demand for high quality higher education also presents policy makers with political risk. So, to reform or not to reform is no longer the question. Mozambique can seize the momentum of its demographic window of opportunity or hold on to the status quo and see this opportunity turn into a source of unrest as the growing ranks of young people in the productive age brackets will feel that ineffective government and lack of opportunity squanders their talents and their chances for a better life.

Incentives and policy objectives

From being part of the problem today, higher education can turn into part of the solution tomorrow. At the heart of the system lies an important set of incentives that needs redesigning to support change for the better. Only setting new policy objectives without changing these incentives has proven to be ineffective.

Changing the incentives implies profound systemic redesigning, and requires also a clear set of policy objectives to give direction to the redesign. The interdependency between policy objectives puts policy makers and stakeholders before complex trade-offs that are not always fully reconcilable. In addition, it is important to avoid that short-term fixes facilitating implementation in the short term, compromise the policy outcomes in the longer term.

The experience

The experiences with implementing EFES have been encouraging and disheartening alike. Disheartening because many changes at political and implementation levels have often led to loss of momentum, inconsistencies, and loss of institutional memory and capacity. Encouraging because despite these problems, and despite the competing demands made on the attention of policy makers by the multitude of challenges Mozambique faces in all sectors, EFES has evolved from a vision into a model with three funding streams, each incorporating a set of incentives that generate synergies between the supply and demand sides. In the process, stakeholder and government representatives have engaged deeply

in resolving the issues and challenges related to the fleshing out the designs, agreeing on implementation modalities and processes, and simulating them in the Mozambican context.

Recommendations

General

Overall, continuity, political commitment and clear and sophisticated communication strategies are paramount in leading deep structural change projects such as EFES. Political risk is shaped by perceptions of fairness and opportunity for all in the design of the future, but also by consistency and competency in implementation. Implementation risk depends on competent management of the political imperative, negotiating the practical hurdles that need to be overcome, and ensuring consistency between short-term solutions and long term-objectives.

It is therefore required that a dedicated and competent team manages EFES, preferably from within a regulatory authority that has sufficient continuity from one mandate to the next, and which has a dedicated budget for building capacity for EFES implementation and for mobilising and managing external expertise.

For the implementation of EFES, the regulatory agency needs continuous political support from the Council of Ministers, from the institutions, and from the wider public. This requires a sophisticated interplay in terms of communication and consultation mechanisms, and close cooperation between legislative and executive powers.

The three complementary funding streams of EFES and the incentives and policy objectives they each harbour, need balancing between them in order to obtain an optimum policy mix. Notable in this are the significant trade-offs between the direct supply-side funding streams and the indirect demand-side funding stream. For instance, increasing the proportion of the Student Fund strengthens equitable cost sharing and the expansion of access, while the reduction of the Base Fund proportion weakens the student based, performance based and operations based incentives. While this optimum will be dynamic and will need to be adjusted in function of the dynamic realities of Mozambique, it must also be sufficiently stable in order to preserve predictability for the institutions, the academia, the students and the wider public.

Within each funding stream, there is also a need for calibration of the incentives and the allocation mechanisms driven by them. On the supply side, the availability of reliable data is crucial for the functioning of EFES, as data will justify the triggering of certain funding levels to the institutions. On the demand side data is crucial for establishing cost-sharing levels, to ensure equity and finance the expansion of access. Data must therefore be available in its most disaggregated form to allow for policy outcome analysis, but also for verification by data audits. Financial controls will have to include such data audits in addition to the standard financial audits. Sanctions need to be devised and strictly implemented in case of fraud.

EFES emphasises accountability and the need for linking funding with performance and results. In order to make this possible, it is required to reduce the rigidity of the current input based financing regime. In return for funding by results, government must allow the institutions sufficient flexibility in how they allocate their resources. The Base Fund has developed performance based budget formats to guide the negotiations between MCTESTP and the institutions, but institutions still need to present their budgets into the input based SISTAFE format in order to obtain funding from MEF. This limits the flexibility of resource allocation for obtaining the best results, and also limits accountability to MEF to financial budget execution only. In the medium to long term, solutions must be developed to facilitate the shift away from SISTAFE input financing formats towards performance based ones, possibly by changing the statute of the public institutions and its financing relationship with the government by means of 3 year contract programmes. This in turn would also facilitate changing the statute of academic staff away from the bureaucratic public service statute towards performance and merit based remuneration systems.

The role of CNAQ is key to ensuring that EFES incentives are not implemented to the detriment of quality. This calls for a close alignment between Quality Assurance and EFES by aligning performance criteria, and creating interactivity between EFES and the Quality Assurance results.

The Base Fund

The implementation of the Base Fund was aborted at the last minute due to the extreme consequences of the 'hidden debt' crisis. However disappointing this has been, it now

presents us with the opportunity to further refine it and resolve some issues until political conditions allow for launching it.

For the Base Fund the following issues need now addressing:

1. The establishment of a dedicated team within MCTESTP with external technical support to launch and manage the preparations and roll out of the Base Fund
2. The establishment of a cloud-based database for higher education containing all required data disaggregated at individual student level
3. A full simulation with all 12 selected institutions to calibrate and fine tune the Base Fund formula and base rates
4. Development of a roll out strategy and implementation plan

The Institutional Fund

If it can be done, it would be preferable to launch the Institutional Fund simultaneously with the Base Fund rollout.

In order to do so, the following issues need addressing:

1. Institutionalise the Institutional Fund under the MCTESTP Research Fund (Fundo de Investigação)
2. A review of the experiences of the QIF and FDI and use best practices for the establishment of an outline for the Institutional Fund
3. Define the procedures and modalities for each of the Institutional fund financing windows
4. Establish budget cycles and amounts for each window
5. Development of a roll out strategy and implementation plan

The Student Fund

The Student Fund carries most political risk, and has proven to still harbour many challenges before it can be successfully implemented. Most probably, the roll out of the Student Fund will require more time, and given the political risk in engaging with the wider public on cost sharing, timing of the roll out will also need to take into account the broader political calendar in Mozambique.

The following issues need to be addressed

1. Review the capacity of IBE, and establish the needs for strengthening in view of the challenges related to rolling out the Student Fund. Decide on the need for external assistance.
2. Peer reviewing the ECI formula to ensure that it correctly reflects socioeconomic strata
3. Devise a strategy and implementation plan for ensuring nation-wide connectivity for online applications
4. Develop a political communication strategy to the wider public ensuring adoption of the transparency principle and willingness to provide fiscal information for means testing
5. Launch a national dry run with 12th year school students to build a picture of the socioeconomic profile of the potential higher education student population, and calibrate the ECI quintiles
6. Decide on the parameters (cost sharing base, and cost sharing scales)
7. Launch the Student Fund

The Center for Higher Education Policy Studies (CHEPS) is a research institute (WHW, Article 9.20) located in the Faculty of Behavioural and Management Sciences within the University of Twente, a public university established by the Dutch government in 1961. CHEPS is a specialized higher education policy center that combines basic and applied research with education, training and consultancy activities.

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