# HIGHER EDUCATION FUNDING IN ETHIOPIA:

# AN ASSESSMENT AND GUIDANCE FOR NEXT STEPS

**Prepared by:**

**Jamie P. Merisotis**
**President**
**Institute for Higher Education Policy**
**Washington, DC USA**

**Prepared for:**

**The World Bank**
**Africa Technical Families**
**UPI Number 00000258377**

**August, 2003**

## Background

The Ministry of Education in Ethiopia has requested technical guidance from the World Bank in the development of a national expansion and reform program for its higher education system. Ethiopia's higher education system is comprised of six public universities—four of which are barely three years old—and several small colleges and short-term training centers. Private colleges also have recently been established, though still account for only about 10 percent of total higher education enrollment.

At 0.5 percent, Ethiopia's enrollment rate for higher education is among the lowest in the world. In a country of 66 million inhabitants with a per capita income of just $116, public higher education enrollments currently number 74,000 students. This total is comprised of three categories: 34,500 residential daytime students who pay no fees; 38,000 non-residential evening students who pay modest fees; and 1,500 graduate students who pay modest fees. With active policy encouragement, system enrollment has been growing at 15% per year over the past five years. Moreover, current plans boldly call for maintaining this high rate for at least another five years. This implies a need to expand capacities for management and leadership within the higher education system, and to ensure that limited government resources are used as efficiently as possible in support of the parallel processes of system expansion and reform.

The present system is managed by a small unit of the Ministry of Education under the leadership of the Vice-Minister for Education. The Ministry is well aware that the reform process it has initiated will, in scope and complexity, soon exceed its own capacities for guidance and supervision. The Ministry's higher education reform strategy therefore anticipates the establishment of two new semi-autonomous public agencies to play these roles: an institute for policy guidance, and a quality assurance agency.

In formulating its reform plans, the Ministry of Education proposes to introduce a funding formula that will provide incentives for institutional change in the pursuit of reform goals. At present, institutional funding is conducted on a negotiated line item basis, with annual increments based on inflation and revenue availability. However, the

funding formula is intended to lay the foundation for the introduction of block grants as the future means of funding the universities.

A small team of local academic staff has proposed an initial formula and implementation plan. The Ministry has requested The Bank's guidance on these matters.[1]

## Objectives

This analysis is part of a short-term consultancy request from The Bank to the author. The objectives of the analysis are:

1. To assess the appropriateness of the proposed funding formula to achieve the identified policy goals of more efficient resource management, increased research output, increased revenue generation by institutions, and improved gender balance in enrollments.

2. To design a workable budgeting formula with justifications for criteria included for higher education institutions in Ethiopia.

3. To suggest essential elements for the implementation and management of this funding formula.

The Bank has requested that this analysis attempt to address the following issues:

- Does the formula contain the essential elements to efficiently fund the system?
- Is the formula too complex for use under prevailing country conditions? If so, what are the essential variables that it should contain for the short, medium and long terms?
- What weights might appropriately be given to the variables of the formula with respect to the institutions?
- How should the transition from line-budgeting to block grant allocations based on the proposed funding formula be carried out?
- What are the critical capacities and preparations required for effective implementation of this funding formula?

[1] Unfortunately, most of the documentation on this subject is written in Amharic, Ethiopia's principal national language. Only a short translated summary in English has been provided for this analysis.

- How might this formula be introduced and implemented with minimized risk and institutional disruption?
- What international experience could be relevant to the Government of Ethiopia in this undertaking? What are the major lessons that might be applied? Are there specific countries where a short study visit by a Ministry team might prove informative in the development and implementation of a funding formula?

## The Proposed Formula

Under the current Ethiopian higher education finance system, recurrent budget has been allotted to each higher institution through the Ministry of Education. The amount of budget allocated has been determined by how much an institution received last year. The proposed new budget allocation system is intended to:

1) be based on the performance of the institutions; especially, number of students admitted, number of students graduated, the quality of education, research and community services rendered by the institution, the ratio of women and minorities, and the ability of the institution to generate additional income;

2) serve as an instrument to implement the education policy of the government; and

3) make the institutions more efficient, competitive, and innovative.

The proposed higher education formula has three sub categories:

- Budget for regular undergraduate studies;
- Budget for graduate programs and research; and
- Budget for providing incentives and rewards.

The total budget allotted by the government for higher education is to be distributed to public institutions based on the following detailed formula:

**Institutional Share =**

$a_1$ (HETB)
[ $X_1$ (Number of Degree Program Students Under Course Band A in the Institution in a particular year / Number of Degree Program Students under Course Band A in all HEIs in a particular year )

+ $X_2$ (Number of Degree Program Students Under Course Band B in the Institution in a particular year / Number of Degree Program Students Under Course Band B in all HEIs in a particular year )

+ $X_3$ (Number of Degree Program Students Under Course Band C in the institution in a particular year / Number of Degree Program Students Under Course Band C in all HEIs in a particular year )

+ $X_4$ (Number of Degree Program Students Under Course Band D in the institution in a particular year / Number of Degree Program Students under Course Band D in all HEIs in a particular year)

+ $X_5$ (Number of Degree Program Students Under Course Band E in the Institution in a pr / Number of Degree Program Students Under Course Band A in all HEIs in a particular year ) + $X_6$ (Number of Degree Program Students Under Course Band F in a particular year / Number of Degree Program Students under Course Band F in all HEIs in a particular year ) ]

+ $a_2$ (HETB) ( Number of Research and Post Graduate Program Students in the Institution in a particular year / Number of Research and Post Graduate Program in all HEIs in a particular year)

+ $a_3$ (Annual Internal Revenue of the Institution / Annual Internal Revenue of All HEIs)

+ $a_4$ (HETB) (Distance of the institution from Addis Ababa / Total Distance of All HEIs form Addis Ababa)

+ $a_5$ (HETB) [ $x_1$ (Number of Diploma Program Students Under Course Band A in the institution in a particular year / Number of Diploma Program Students Under Course Band A in all HEIs in a particular year ) + $x_2$ ( Number of Diploma Program Students Under Course Band B in the institution in a particular year / Number of Diploma Program Students Under Course Band B in all HEIs in a particular year )

+ $x_3$ (Number of Diploma Program Students Under Course Band C in the Institution in a particular year / Number of Diploma Program Students Under Course Band C in all HEIs in a particular year ) + $x_4$ (Number of Diploma Program Students Under Course Band D in the Institution in a particular year / Number of Diploma Program Students Under Course Band D in all HEIs in a particular year )

+ $x_5$ (Number of Diploma Program Students Under Course Band E in the Institution in a particular year / Number of Diploma Program Students Under Course Band E in all HEIs in a particular year ) + $x_6$ (Number of Diploma Program Students under Course Band F in the Institute in a particular year / Number of Diploma Program Students Under Course Band F in all HEIs in a particular year )

$a_6$ (HETB) [L (Number of Degree and Diploma Graduates from the Institution in a particular year / Number of Degree and Diploma Graduates from all HEIs in a particular year)

+ M ( Number of Female Degree and Diploma Graduates from the Institution in a particular year / Number of Female Degree and Diploma Graduates from all HEIs in a particular year )

+ N (Number of "Affirmative Action" Students in Diploma and Degree Programs from the Institution in a particular year / Number of "Affirmative Action" Students in Diploma and Degree Programs from all HEIs in a particular year) ] [2]

Under this complex formula, a1,a2,a3,a4,a5,a6 are indices that determine the relative weights given for undergraduate and graduate studies and quality and quantity of research, and internal income generation; their value is determined by the government policy. a1 + a2 + a3 +a4 + a5 + a6 = 1. Note that HETB = Higher Education Total Budget.

Likewise, indices L, M, and N indicate the relative importance of each indicator in determining the size of the undergraduate budget.

Under the proposed formula, the proposed budget allocation system shall be implemented gradually, under a five year transition period.

**Percentage of Budget**

**to be allocated by the formula = 0.2 (6-T) Recurrent Budget**

"T" = number of years

[2] According to the documentation provided, "for simplicity of the calculation, costs associated with Degree and Diploma Programs are distinguished with $a_1$ and $a_5$ coefficients."

## Analysis

There are many laudable features of the proposed approach. The focus of the three goals of the new formula are quite important and understandable from a government policy perspective. Certainly Goal 1 (to improve the performance of institutions) is important in the context of an expanding higher education system. Assuming the goal of such expansion is to generate more high-skilled leaders for the country's growing business, government, and NGO sectors, the performance of the institutions will be critical. Similarly, the intent of Goal 3 (make the institutions more efficient, competitive, and innovative) is also essential, since these characteristics are important for the continuing expansion of the system in a way that protects and promotes quality. It is less clear whether Goal 2 (serve as an instrument to implement the education policy of the government) is equally as necessary, since the documentation provided only describes the government's policy goals in very general terms. Those who have a better understanding of the goals and objectives of the government's education policy may offer a more informed judgment about this goal.

The desire to "phase-in" a new formula also is desirable, since such a dramatic change from a line-item budgeting system certainly will have unintended and unanticipated negative consequences that can be addressed with a gradual implementation. Likewise, the formula elements that address the country's needs for more inclusion of women and underrepresented minorities also are highly desirable and worthy of inclusion in a new financing system. So, too, is the decision to consider proximity to Addis Ababa; too often, rural students in Africa face dramatically lower rates of educational access and attainment than urban students, as can be seen in countries with sizable higher education systems (Tanzania, Nigeria, South Africa) and those with much smaller systems, such as Mozambique.

There are, unfortunately, many problems with the proposed system. First and foremost is the regrettable complexity of the formula. The formula is likely to be more trouble than it is probably worth. Part of the problem lies in the fact that the formula seems to confuse complexity with sophistication. While it is certainly a detailed and logically

structured formula, it has many shortcomings. Collection of such detailed data from institutions would be a complex and laborious process. This is not to say it is unattainable, particularly since much of the data is simple enrollment numbers. However, unless sufficient capacities already exist in all of the public institutions (see additional discussion below) to collect data by course band, gender, ethnicity, etc., the formula will be seeking information that is likely not readily available. Institutions will be forced to undertake expensive and time-consuming processes to collect such data, or might even take short-cuts to estimate the numbers, which would defeat the purpose of such a complex formula overall.

The limited sophistication of the formula also is of concern. For the most part, the enrollment-based aspects of the formula simply compare the institution to all other institutions in a proportional sense. That certainly has the effect of making the institutions highly competitive in terms of the proportion of the overall recurrent budget allocated, but will do little to encourage less qualified institutions to do better. In other words, this formula is likely to reinforce the status quo with regard to which institution currently has the most capacities.

Nor does the formula appropriately weight the different factors to emphasize the relative importance of the factors included. Right now, for example, the formula essentially offers an equal weighting of Distance from Addis Ababa ($a_4$) with the Number of Research and Post Graduate Program Students ($a_2$). Is that the goal that has been articulated by the government? Might there be some relative weighting that would be appropriate to take into account?

It is also a concern that the formula takes annual changes in the various factors into account in determining the next year's funding. While annual changes are sometimes appropriate as a measurement tool, in many cases a single year can be an aberration that does not reflect a long-term trajectory of what the institution has accomplished. For example, an institution that sees a one-year decline in the number of Degree and Diploma Graduates would be punished under the formula, even if it had increased the number of

Graduates for several of the prior years. This seems to be a needlessly blunt tool to be using when the overall goal is to create incentives to encourage more production of qualified graduates over the course of several years.

It is also not clear why a formula (as opposed to other mechanisms) would serve as an appropriate vehicle for internal income generation. There are many ways to help steer institutions toward internal income generation; using the base funding formula to do so seems a somewhat self-defeating concept, since the lack of internal income generation would reduce the base funding provided, thereby limiting the institution's capacity to generate further internal income in the future.

## Recommendations for a Different Approach

Moving from a line-item budgeting system towards one that offers block grants to institutions is a worthwhile and attainable goal. However, such a system can be implemented without the limitations that characterize the system proposed in Ethiopia. One way to do this is to build a series of steering mechanisms into both formula and non-formula funding to achieve the goals of performance, efficiency, innovation, etc.

Some brief background on how this could be implemented seems warranted. "Steering mechanisms" are policy tools that encourage higher education institutions to take certain steps that are deemed essential to national economic, social, or other goals. The "mechanisms" are typically some type of funding device designed to encourage or "steer" the institutions toward meeting a specific goal or goals. These mechanisms can be included *either* as a part of the *base formula funding* that is provided to institutions, or as part of *non-base funding*.

*Base formula funding* is funding provided by the government to continue the basic operation and maintenance of higher education institutions. Base funding is typically enrolment-driven and provides operational stability. This type of funding is a blunt instrument, and can provide some level of steering, though often not well targeted. It has some advantages in that it is a fairly autonomous process that does not require significant

administration or oversight. Using the analogy of a compass, the base funding steering mechanisms can point the funding system in the direction of national policy goals, but they do not usually offer much precision.

*Non-base funding* comes in addition to the funding provided through the base formula. This type of funding is usually a pool or pools of resources directed to specific purposes, and is therefore somewhat better suited to steering. It also offers more flexibility than base formula funding and can be adapted to address new needs and goals. There are several different types of non-base funding approaches. These include earmarked funding, which is funding dedicated or earmarked for a specific program, mini-formulas, which use an algorithm separate from the base formula to determine how funding is allocated to institutions, and other approaches that are on top of the base formula. In the compass analogy, these non-base funding approaches can often be more precise in targeting coordinates.

Several other nations have developed these non-base funding pools in recent years to achieve desired policy goals. In Germany, for example, the federal government and states are working in partnership to achieve specific reforms. A funding pool was allocated jointly by states and the federal government to support improvements in the higher education infrastructure, gender equity for faculty and staff positions, and other priorities over several years, with about 1 to 2 billion DM in 1996 (on an annual higher education funding base of 48 billion DM). These funds are distributed to higher education institutions based on demonstrated need and institutional mission.

From an international perspective, steering mechanisms are policy-driven funding priorities that occur both through base and non-base funding. They have been used increasingly by nations and states to achieve specific national policy objectives. Countries ranging from Australia to Japan to the United States are moving away from rigid formulaic allocation of government resources to support higher education to a more diversified approach that includes other types of policy-driven, non-base funding.

While steering mechanisms can be implemented by threatening the loss of funding unless certain "performance" goals are met, the most effective steering mechanisms are those that reward performance or evidence of change. The aim is to reward institutions that perform in such a way as to carry out nationally defined policy goals. An example from the U.S. experience may help to illustrate this point.

The State of Arkansas has successfully used non-base funding steering mechanisms that are related to specific policy goals. Arkansas has implemented a productivity funding program that links a funding pool of 3% of total government allocations for higher education institutions to the achievement of certain stated goals. This performance funding is *on top of* the regular formula funding allocated to institutions. The state has identified six major performance goals as key goals for all institutions: retention, graduation, quality, efficiency, workforce development, and diversity. Sixteen specific measures of achievement of those goals are required of the institutions. A proportion of the performance funding pool is then allocated to institutions based upon their attainment of these measures, using a weighting scheme. This approach has resulted in significant improvements on the part of institutions in achieving state-wide goals, including increased minority retention and graduation rates, and reduced administrative costs.

Such steering mechanisms tend to work best when they use the baseline performance of an individual institution as the starting point for determining the amount of funding provided. In other words, the pool of resources does not reward those who are already advantaged—it rewards attainment of policy goals in relation to where that individual institution was previously. For example, in the State of South Dakota, a base budget is used to fund basic institutional operations, with annual increases for inflation as appropriated by the legislature. In addition, an amount equal to 5% of the universities' tuition and general funds is distributed through a performance funding mechanism. Each university *competes against itself* to improve its performance in a total of five state policy goals identified by the university system's Board of Regents. If a university achieves or improves upon its target in a particular goal area, it receives resources from the performance fund.

In the context of Ethiopia, then, some combination of a simple but targeted formula for base funding with some additional pool of funds for additional steering would be ideal.

Ideally, the base formula funding would focus on the key operational aspects of the university. In general, these base funding components include:

1) instruction;
2) research;
3) physical plant operations;
4) general management and services;
5) student support and services.

A true formula in the sense that it is used in other countries would need to take into account the relative importance of each of these components in terms of overall goals of the institution, and in terms of national goals. For example, instruction is usually the most significant factor in any formula, since it takes into account the salaries of teaching staff. This would therefore have a relatively high coefficient in any formula. In Ethiopia, it is likely that student support services also would be substantial, since this would include general housing and other living expenses for students.

The challenge, of course, is in whether the universities in Ethiopia have the current capacity to collect such information. This seems unlikely, and may be why the proposed formula focuses simply on ratios of enrollments at a single institution to enrollments in the nation overall. Assuming this data capacity does not currently exist, then, a more simplified approach for base funding could be structured.

One way to do this is to use the baseline of current funding as a guide for future base funding. In other words, funding distribution across the various public institutions would be assumed to "hold harmless" the institutions and provide some level of assurance that their current basic level of services would continue. This would encourage institutional acceptance of a new funding system even as it evolves to incorporate more steering mechanisms to achieve the goals of performance, efficiency, and innovation.

In this case, then, the baseline year would provide the initial coefficients for the six public universities. Here is an illustration, using wholly invented figures. Let's assume that the total recurrent budget for higher education in the baseline year equals $US200 million. We assume that the institutions received the following funds in that year, with the corresponding share of the total recurrent budget:

| | | |
|---|---|---|
| Institution A: | $US80 million | 40 percent |
| Institution B: | $US60 million | 30 percent |
| Institution C: | $US30 million | 15 percent |
| Institution D: | $US10 million | 5 percent |
| Institution E: | $US10 million | 5 percent |
| Institution F: | $US10 million | 5 percent |

This baseline percentage could then be the initial coefficient that is applied to the funding calculation in subsequent years. That coefficient then could be applied to three simple enrollment factors to ensure that some rudimentary steering is included in the base funding. The first would be the number of degree program students enrolled for undergraduate studies, the second would be the number enrolled for graduate programs and research, and the third would be the number of diploma and degree program graduates from the institution. To ensure that there is not a "drop off the cliff" phenomenon that results from annual fluctuations, the formula instead could use a simple three-year actual rolling average. The three-year rolling average would be based on an average of each of the three factors for the three years prior to the current year. For example, to calculate the number of diploma and degree program graduates for 2004, the numbers from 2002, 2001, and 2000 would be averaged. This would help to promote system stability as it continues to transition and transform.

Of course, this is not to say that this should be the ending point for the implementation of a funding formula. Instead, this could serve as the first stage in moving toward a

formula-based system, providing basic support and very general steering via block grants to institutions. Over time, additional factors could be added.

Beyond the base formula, it would be important to also include a pool of non-base funding for more direct steering toward the goals that have been articulated for the system. This non-base funding should probably be 5 to 10 percent of the total recurrent budget. Thus, in the example above, base funding could be allocated assuming $US180 million (90%), with the remaining $US20 million (10%) used for steering purposes.

It may seem somewhat counterintuitive to put a relatively small amount of funds on the table for such steering. However, making these funds fully available to all institutions on a competitive basis would provide significant incentives and would logically lead to innovation and efficiency. This has certainly been the case in the U.S. states that have done so, and appears to be showing some promise in South Africa (which recently implemented steering mechanisms as part of its highly technical funding formula).

Here is an illustration of how a portion of such non-base funding might be distributed. Under this example, many of the goals articulated in the formula proposed for Ethiopia are included. But this represents a simpler approach to such funding, and does so outside of the base funding formula, reducing the likelihood of severe unintended effects.

| **Productivity/performance outcomes** | **Percent** | **US Dollars (in millions)** |
|---|---|---|
| | | |
| **Female Enrollments** | **50%** | **$US10** |
| Overall | 40% | $US8 |
| Disadvantaged students | 10% | $US2 |
| **Graduation rates** | **30%** | **$US6** |
| Overall | 20% | $US4 |
| Disadvantaged students | 10% | $US2 |
| **Annual Internal Revenue** | **10%** | **$US2** |
| **Distance from Addis Ababa** | **10%** | **$US2** |
| **Total** | **100%** | **$US20** |

Greater emphasis under this illustration is placed on enrollment of female students and graduation rates, reinforcing the goals of efficiency and student equity. Other weightings and priorities are possible. For each mechanism, indicators or measures of progress could be developed to allocate the funds to individual institutions. Clearly other factors could be taken into account in this non-base funding pool, including community services rendered by the institution, research output, and other goals that have been agreed upon at the national level.

Of course, the capacity of institutions to collect such information still will be problematic. It may be useful for the government to invest funds up-front in data collection and information management systems, and include such supplemental aid as an add-on to the block grant for base funding. A specified time period of, say, five years, could be agreed upon for such data and information management capacity building. These items would then be removed from the base funding pool, and added to the non-base funding pool to create more incentives for competition and innovation.

## Conclusion

The decision to move from line-item budgeting to a block grant approach to funding of higher education institutions in Ethiopia represents an important step forward in the development of higher education in the country. For the system to continue to expand and address the nation's growing needs for postsecondary educated workers, such an approach will be a major boost.

A funding formula that is complex, confusing, and has the potential to have destablizing, unintended negative effects on student access and equity would be unwise. Instead, a simple approach that combines both formula and non-formula tools with steering mechanisms to meet national goals would be a more effective way to allocate funds to institutions. As the institutions and government development more sophisticated data collection and information managements systems, a more detailed formula, along with more detailed non-formula steering mechanisms, might be developed. These could be

adopted progressively over time, taking advantage of the opportunities to learn what works and does not work in the more simplified system.

The implementation of this new system could be developed by a local team of government and institutional officials, working together to ensure acceptance of the system. If necessary, international expertise from nations that have undertaken such a new approach to funding could be included. The larger, more sophisticated nations with such recent experience include the U.K., South Africa, and Australia, along with several U.S. states. Countries such as Mozambique and Tanzania, which are moving toward a new funding structure, also might be consulted to learn from their experiences.