



**Ka održivom i jednakopravnom
finansiranju *visokog obrazovanja*
u Bosni i Hercegovini, Crnoj Gori i Srbiji**

**Towards Sustainable and Equitable Financing of Higher Education in Bosnia
and Herzegovina, Montenegro and Serbia**



**WP 5. INSTITUTIONAL FUNDING STRATEGY – CASE
UNIVERSITY OF MOSTAR**

**Report from the Working Group in Federation Bosnia
and Herzegovina and University of Mostar**

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1. INTRODUCTION

1.1. The theoretical propositions of financing

Both developing and developed countries search for appropriate higher education financing models in order to achieve a high quality, efficient, effective and equitable higher education. There are two completely opposite approaches to higher education financing – institutional financing and higher education demand financing.

Higher education financing can be analyzed at the macroeconomic level and improved by introduction of fiscal rules. At the system level, the crucial challenge is related to increase of higher education government spending efficiency, in order to contribute to a more equitable higher education system. Active role and direct state interventions are necessary for the achievement of these goals [1],[2],[3],[4]

We can identify four types of state interventions in the economy [5]:

1. Regulation,
2. Finance,
3. Public production,
4. Income transfers.

Regulation and financing are two methods of direct state involvement in the improvement of higher education system and these types of interventions have an impact both on the public and private provision of higher education services. Legal changes precede implementation of a new higher education financing model, with the aim to synchronize financing allocation mechanism and the planned economic and societal outputs and outcomes.

Regarding institutional financing, it enables stable financing of higher education institutions, but does not provide sufficient incentives for maximization of desired outputs and outcomes. Conversely, higher education demand financing strives to generate positive outputs and outcomes by increasing the competition among higher education institutions and consequently removing the predictability and stability of institutional financing in mid- and long term.

Changes and adjustments of higher education financing models are, in fact, deliberate interventions of the state in the higher education system. The inertia and lack of initiative are immanent to higher education institutions and, therefore, an active role of state could be warranted. Elasticity of higher education institutions to the changes of financing approaches and models reflects their willingness and ability to attain sustainable institutional development. Closing the gap between institutional development priorities and

societal and economic needs is one of the incessant challenges of higher education governance.

At the same time, public higher education in Europe, as well as in Bosnia and Herzegovina, are facing challenges connected to the increased demand for higher education, which keeps driving up the costs and, at the same time, reduces public funding for the sector.

In other words, massification process of higher education in the previous decades has created entirely new types of challenges, both for the states and higher education institutions. Higher education systems have undergone wide and deep structural changes related to both horizontal and vertical increase of higher education systems. The massification process has amplified the complexity of higher education governance and financing. Therefore, both the role of the state and higher education financing models had to be adjusted to the new reality.

Increased enrollment of students has been generating an additional pressure for the increase of budgetary contribution and introduction of tuition fees. This issue has been addressed in different ways, based upon the fiscal stance and the political conditions in each country faced with this issue. The case for the introduction of tuition fees and cost-sharing of study-related expenditure burden [6] is based on the private benefits of higher education. The graduates have a better chance for employment and can expect higher income and lifetime earnings in comparison to citizens without a higher education degree. Nevertheless, the participation of students in providing the higher education funding has only a supplementary role and the key issues on higher education financing remain in the jurisdiction of the state.

On the other hand, direct government support remains the most important source of revenue for public universities in Europe but, in the light of the recent developments in economy and the fact that governments face difficulties in providing adequate financial support for high quality education in the light of national austerity measures, the idea of full public funding of higher education in Europe is under question. It means that revenues from tuition fees are going to be an increasingly important income source for universities, which is likely to grow as public funding decreases. In other words, tuition fees could become a favorable alternative for stakeholders in case public authorities cannot provide sufficient revenues for higher education to function properly.

The context in which higher education institutions operate today is, also, characterised by increased engagement of higher education institutions within society and industry, because generation of revenues from financial activities and services is an alternative way to diversify the income sources of institutions. Many institutions are developing their fund raising capacities to attract donations from foundations, companies and alumni. There are several models of cooperation, while the most advantageous are long-term strategic partnerships, but such partnerships remain a challenge for most universities. All the described activities caused a situation in which managing institutional endowments requires more financial responsibility and long term planning capacity, while creation and development of science parks and spin-off companies requires adequate internal support by

university management and faculty . This means that universities need to be free to manage their staffing matters, including recruitment and salary levels of their staff, their own property and equipment, define student numbers and tuition fees, and be free to handle revenues obtained from private sources. Moreover, universities must be able to identify the full costs of all their activities, to assess the degree to which these costs are covered by the funding source, and whether engaging with a given partner results in a profit or a loss for the institution. Consequently, universities without the ability to manage their expenses can hardly engage in income diversification, which makes them more vulnerable to uncertainties in public funding [7].

In the light of the described developments and the context, challenges and importance of higher education financing, institutional financing in F B and H – case University of Mostar is one the main topics considered within in the TEMPUS project FINHED. University of Mostar is specific for the simple reason that its founders are 5 cantons (Herzegovina-Neretva, West Herzegovina, Herzeg-Bosnia, Posavina and Central Bosnia) out of 10 in the Federation of BiH.

1.2. Composition of the Working Group

After the consultations of the Coordinator with the project partners in Federation Bosnia and Herzegovina in December 2014, the Working Group was established and it consists of the following representatives, who took active role in all the related activities and, later, in the writing of the Report.

Federal Ministry of Education and Science

1. Zlatan Buljko, Professional Advisor, Institutional Coordinator for TEMPUS FINHED project

University of Mostar

1. Ph.D. Ljerka Ostojić, Rector of University
2. Ph.D. Izabela Dankić, Vice-Rector
3. Ph.D. Ivo Čolak, Vice-Rector
4. Ph.D. Vlado Majstorović, Vice-Rector
5. Ph.D. Vojo Višekruna, Project Coordinator
6. Ph.D. Dražena Gašpar, Professor at the Faculty of Economics
7. Ph.D. Sanja Bijakšić, Professor at the Faculty of Economics
8. Ph.D. Željko Marić, Professor at the Faculty of Economics
9. Ph.D. Milenko Obad, Professor at the Faculty of Mechanical Engineering and Computing
10. Gordana Maslov Head of Accounting
11. Iva Šaravanja, Administration
12. Kata Mandić, Administration
13. Marija Nakić, Administration

1.3. Report goal and structure

This report provides an overview of funding of educational institutions in the Federation of Bosnia and Herzegovina focusing on institutional funding of the University of Mostar and proposing several new models aimed at improvement of existing funding.

According to the Law on Federal Ministries and other bodies of the Federal Administration, the Federal Ministry of Education and Science performs administrative, professional and other tasks stipulated by law referring to coordination of planning and activities within the Federation of BiH, in the area, among others, of higher education encompassing implementation of the Bologna Process, standards in the area of premises, equipment and teaching aids, scientific and research activity on improvement of educational work, university students standard and coordinating the exercise of the rights of youth in education and science. Cantonal Ministries of Education perform administrative and professional tasks stipulated by the Constitution, law and other regulations relating to the competencies of cantons in the area of education and science.

Funding of HEIs in the Federation of Bosnia and Herzegovina is under jurisdiction of cantons. Federation of BiH allocates funds to cantons according to an agreed formula, but the formula for the allocation of cantonal revenues does not include a provision for higher education financing, and thus the burden of financing higher education institutions is divided unequally by cantons.

In the Strategic Directions for Development of Higher Education in the Federation of BiH from 2012 to 2022 three key measures to improve the higher education financing are proposed: modification of the cantonal system of higher education financing in order to prevent misallocation of resources among cantons, whilst taking into consideration the complex institutional context; creation of a combined financing system that will take into account financing per student formula, and thus financing would not be based on input costs and establishment of a better planning and allocation of resources through the development of the Medium Term Expenditure Framework - MTEF for the higher education sector.

Recently completed the EU funded project *Reform of Higher Education Financing in Bosnia and Herzegovina* proposed a student-based allocation model or “*a model of financing public higher education institutions / universities is to be defined as the principle of higher education financing according to which the basis for financing would be represented by costs per student of a certain study program, within a certain study cycle*”, which also developed the computer program enabling universities to calculate costs of operations, establish actual and optimum costs per student and study program, as well as to identify deficit or surplus study programs, examine how cross-subsidization works or needs to work between the public and university income sources and among study programs. However, this proposed model has not yet been implemented.

The survey conducted within the project showed that the public funding is decreasing and resulted in increase in tuition fees and thus imposing additional burden on students and their families.

University of Mostar is specific, because it is founded by five cantons (Herzegovina-Neretva Canton, West Herzegovina Canton, Canton No 10, Posavina Canton and Central Bosnia Canton) among of 10 existing in the Federation.

As it is already mentioned, the University of Mostar is one of the eight public universities in Bosnia and Herzegovina, or one of the six in the Federation of Bosnia and Herzegovina. Its specificity is reflected in the fact that it was founded by the five cantons, as it follows:

- Herzegovina-Neretva Canton,
- West Herzegovina Canton,
- Canton No 10,
- Posavina Canton and
- Central Bosnia Canton

It is five cantons among the ten existing in the Federation of Bosnia and Herzegovina.

Besides that, the financing of the University of Mostar is specified as the Canton budgets item called "grant", which makes them unequal in relation to the other universities, in the sense of public revenues collection.

It should be emphasized that these five cantons (founders) signed the University of Mostar Financing Agreement which provides that each canton is obliged for the University to allocate 5% of their budget revenues. Unfortunately, the cantons founders do not fulfil this obligation in the manner prescribed by the Financing Agreement.

In that sense, this report points out these specifics and suggests an appropriate strategy to ensure public funds which are necessary for the teaching process and students in order to increase the number of those who study with the support of the ministries, as well as to provide suggestions that would be in the domain of ministries to improve studying conditions of those who want to study, but their material possibilities do not allow them.

2. INSTITUTIONAL FINANCING OF HIGHER EDUCATION

2.1. The evolution of higher education institutional financing

The analysis of institutional financing allocation mechanisms evolution and the relationship with demand side financing is the core research subject of this chapter. Perception of institutional financing has changed since the 1970s to the present. The unconditional state support for higher education has been transformed into a qualified financing based upon the fulfillment of set indicators.

Evolution of higher education allocation mechanisms went through four stages[7]:

1. Input based allocation mechanisms,
2. Formula financing,
3. Output or performance based allocation mechanisms,
4. Vouchers.

The sources of financing are one of the most important issues that should be considered as part of the financing the University.

The financing sources can be:

- Public funds (funds provided by the Government),
- Private sources (students, their parents, the private sector) and
- International sources (mainly international projects).

It can be expected that the funds provided by the Government has the largest share of these three above-mentioned sources of financing. The next question that is necessary to be considered is a way of how these funds is going to be allocate to the universities: direct, indirect or combination of the two ways. There are several approaches that explain the method of distribution and mechanisms of public funding of universities. One possible way of the funds transmission to the universities is shown in Figure 1. [9].

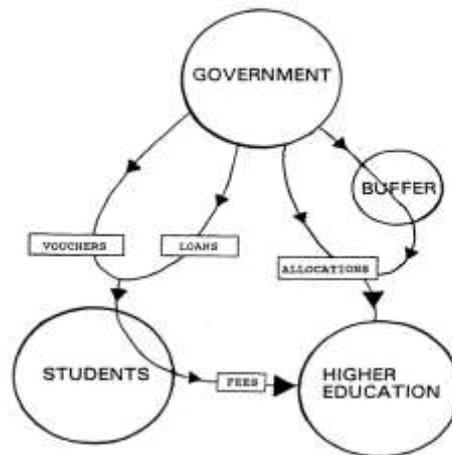


Figure 1. Potential ways of public funding transfer

The funds are usually allocated directly to the universities - usually in the form of grants or through the budget lines, or by students vouchers or costs paid by the government, and the majority of the systems have a component of financial support for students and their families, either through grants / scholarships, loans, incentives or tax incentives.

The forms of financing are shown as alternatives in the graph, but in practice they are used together as complementary approaches.

In the case of B&H, Government transfers the funds to the universities directly. A small percentage of the funds are allocated indirectly through students scholarships. The mechanisms that governments use to allocate public funds to the universities are complex and various. According to the study of the Council of Europe they can be evaluated by two dimensions as it is shown in Figure 2:

- The extent to which the government are trying to directly manage the operations within the university?
- The extent to which the funds are based on the fulfilment of various objectives?

The first question is concerned with the funding base, whereas the second question speaks to the degree of market orientation in the funding arrangements. Based on four possible models that the two of them are suggesting for funding of higher education, which are presented below, it is possible to perceive the funding model that is in use in Serbia, as well in which direction the representatives of the Ministry of Education, Science and Technological Development are thinking, concerning the funding of higher education in the future.

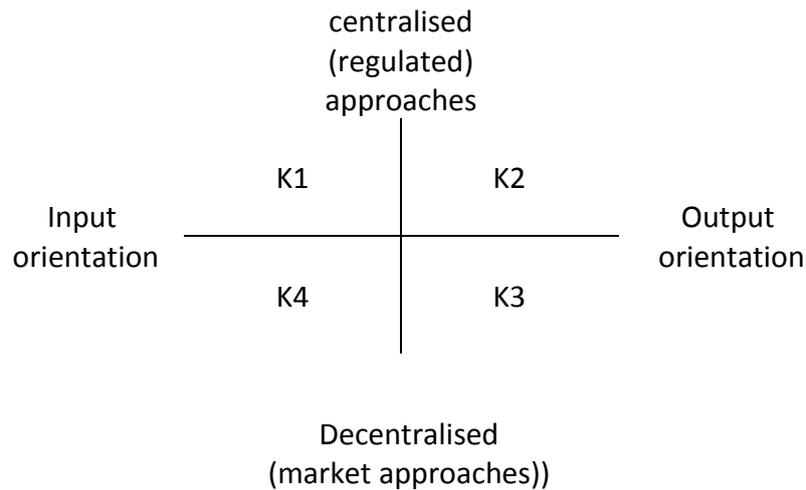


Figure 2. Mapping of public funding arrangements

In the graph below [8], have presented a funding mechanism; the vertical axis is used for depicting the degree of (de-)centralisation and the horizontal axis for expressing the degree to which governments are paying for the results (outcomes) instead of the efforts (inputs). It is possible to notice four quadrants (K1, K2, K3, K4), that present four types of funding arrangements.

K1: planned, input-based funding through providers

The north-west portion of the diagram represents a centralised system of funding. It shows a more traditional type of budgeting, where allocations are based on requests (activity plans; budget proposals) submitted to budgetary authorities. This is known as negotiated funding. In this mechanism, the budget allocation is often based on the previous year's allocation of specific budget items. Separate budget items then are negotiated between representatives of educational institutions and the funding authorities (i.e. the ministry, or funding council). Annual changes (usually increases) in each budget item are treated individually, with discussion taking place on the basis of cost projections. In this case, budget items are likely to include categories like staff salaries, material requirements, building maintenance costs, and investment. Funding is line item based, and shows different expenditure items as separate lines of the budget. These line items are determined by referring to norms with respect to indicators like unit costs (or unit cost increases) or capacity (e.g. funded number of students).

K2: performance-based funding of providers

In this example of a performance-based funding system, a formula is used that generates funds for institutions that are successful in terms of their students passing exams, publishing record of faculty members, degree of internationalization achieved etc. Let us focus, e.g., on the first of these performance measures. Depending on the number of credits (i.e. weighted number of passed courses) accumulated by their students and the subject categories concerned, a budget is flowing to the higher education institution. This type of model is operating in Denmark (taximeter model), while in Sweden a mix of enrolment numbers and

credits determines the funds allocated to higher education institutions. In the Netherlands, a mix of the number of first-year students ('freshmen') and the number of Master's degrees conferred determines the funds allocated to the universities. Other examples can be found in the UK, where research is funded in proportion to a measure of research quality. Research quality is assessed and rated every five years (in Research Assessment Exercises). Funding may, also, explicitly aim at attracting foreign students and faculty members and creation of study programs in English (internationalization).

K3: purpose-specific purchasing from providers

In this example of a market-oriented funding system, higher education institutions are invited to submit tenders for a given supply of graduates or research activities. The tenders that are selected by the funding agency are the ones that are the most price-competitive. In this tendering process, higher education institutions are encouraged to compete with one another to provide education, training and research to meet national needs. Another example is research funds awarded by research councils. The system will make use of contracts that are signed between the funding agency and higher education institutions, with the latter agreeing to deliver graduates for targeted labour market needs, or research outputs targeted at strengthening the innovative capacity of the country. When entering into a contract, the funding agency will make sure it obtains the services it wants for a reasonable price. In this way the costeffectiveness of the delivery is stressed. In the contract, both parties express that they will obey certain criteria. Only if these criteria are fulfilled, the higher education institution will receive core funding. The criteria may concern the types and qualifications of students admitted to the higher education institution, the (maximum) level of tuition fees (if any) charged by the institution, and the commitment made by the higher education institution towards its students in the instruction and teaching processes.

K4: demand-driven, input-based funding through clients

This funding system makes use of vouchers. The core funds of higher education institutions are supplied through the clients of higher education institutions. Students obtain vouchers, which

can be traded for educational services (i.e. educational consumption), at the higher education institution of their own choice. For the higher education institution the vouchers represent a certain value - they can be cashed at the Ministry of Education. Each (prospective) student is given a limited number of vouchers, representing a value which can be used up in a flexible way (during a certain period of time and for programs supplied by a given number of accredited education providers). In this funding system, it is the consumer that drives the system - the system is demand-driven. The client (student) decides what institution to attend to and what programs to enrol in. The higher education institutions will have to look after the quality of their teaching and their supply of courses, because unattractive programs will not receive sufficient funding. The voucher system can be combined - like many other funding variants - with a system of differentiated course fees. The higher education institutions then will charge the students a certain percentage of the

course costs. Tuition fees may be regulated to some extent by the government. Charging fees will make students pay attention to the quality of the service they get from the higher education institution. So, combining vouchers and fees may result in a system which is responsive to individual students' demands.

In terms of funding mechanisms there is no uniform agreement about the types of funding mechanisms for universities. The traditional approach, which is the most common in Europe is the historical (incremental or negotiated), with the amount of funds agreed in relation to the funds from the previous year. Within the current reform of university financing, the main types of funding mechanisms are funding formula, contract financing and project financing or earmarked financing. Definitely, there is a shift towards funding based on a formula, although there are still many cases in which the historical approach is the main method of financing.

It is evident that there is a very wide range of practices within the EHEA related to the funding of universities, and majority of national contexts use a combination of different approaches, which provide a number of tools that can be used to develop the system and enable system to adapt to the external influences. Each country should develop its own approach and the system in a way which corresponding to their needs, within the broad context of European development.

3. THE FINANCIAL RESOURCES DISTRIBUTION TO THE HIGHER EDUCATION INSTITUTIONS IN THE FEDERATION OF BOSNIA AND HERZEGOVINA

Financing of higher education at public universities/colleges is made from both the budget of cantonal ministries of education and from students' fees. Tuition is the amount of funds with which the student participates in co-financing of the total costs of his/her studies at public HEIs. Ministries of Education propose tuition fee for all study programmes in public HEIs, based on the proposal of HEIs in accordance with the enrolment policy for that year. The government decides on the amount of tuition for all study programmes at HEIs and for each academic year. Registration fees are fees that students pay when enrolling at HEIs. Funds for higher education activities in public HEIs are provided from the budget of cantonal ministries and to a lesser extent the local self-government, donation and other sources.

The main problems of financing is, above all, the cantonal financing that does not take into consideration the origin of students, in terms that the heaviest financial burden is placed on the cantons that have universities/study programs which enroll more students (i.e. University of Sarajevo) with only limited contributions of cantons having no higher education institutions, though students also come from these cantons to study elsewhere. The problem is also the allocation on the basis of input costs that do not take into consideration any principle of optimal allocation of the budget. The budget is mainly planned on the basis of the cost of salaries and contributions of staff/employees (i.e. traditional staffing-based allocation) representing almost 90% of the total public financing. This approach, proposed on the basis of input costs, is a huge obstacle to improving the quality of higher education since it is not based on indicators of performance or achievement of agreed objectives in advance. In addition, the treasury system, currently being implemented by three public universities, without an effective expenditure management, also does not contribute to the measurement of results, cost-effective achievement of objectives, or any other indicators of quality in higher education and research at university institutions.

A mechanism used for allocation of public funds to public universities is negotiated and incremental funding and grant scheme but also both negotiated and incremental funding. Research funds are not allocated by cantons (except Sarajevo Canton). Research activities are funded only by donations and grants from the Federation level (i.e. Federal Ministry of Education and Science) and they are insufficient and without continuity

Federal Ministry of Education and Science is following the implementation of the Bologna process and is financially supporting projects of HEIs for internationalization, mobility, quality assurance, modernization of curricula, linking of HEIs with labour market, LLL, building a knowledge society etc.

4. UNIVERSITY OF MOSTAR

As already stated the financing in the Federation of Bosnia and Herzegovina is at the cantonal level. One of 10 canons is also Herzegovina-Neretva Canton. An important aspect of this Canton, when higher education is concerned, had an effect on two public universities as follows:

- University of Mostar and
- University "Džemal Bijedić" of Mostar.

An important feature of this financing is that neither the University of Mostar nor the University "Džemal Bijedić" of Mostar are not budget beneficiaries but classified in the cantonal budget as institutions generating their income through a "grant". This clearly points to the approach to higher education and a wide range of problems associated therewith. First of all, it refers to the amount of funds that are not nearly sufficient for normal operation, and especially not for a normal and quality operation. Other funds are not coming by appropriate pace and are often subject to reduction.

By analyzing the available literature in the field of higher education financing [10][11][12][13] we have not encountered such a model. These models are based mostly on two components (two sources), both public and private. When it comes to public revenues they are carried as budget items and usually aim to cover the whole or part of the costs of salaries of teaching and non-teaching staff, maintenance and periodic improvement of infrastructure in the function of the teaching process. The percentages of public funds in relation to the total funding generated by universities are differing and generally range from 50% upwards. This is to a great extent in the spirit of European countries' experiences, where according to the source [14] reads as follows: *„Public authorities continue to be the primary funder of Europe's universities. In the countries for which system averages are available, public funding represents between 50% and 90% of the universities' income structures“.*

The analysis of public revenues trends in five canton-founders in the period since 2006 [15] shows that the share of these funds in total University financing was 42%. in 2006., to 19.1% in 2012 with a trend of further reducing which was at the level of 17% in the previous 2014.

Having in mind that universities have also a scientific research component in their operation it is logical that a portion of these funds should be directed to this operation component which makes the problem of financing even more complex. Here we should add another fact that BiH has no Law on Scientific and Research Activity nor the Ministry/ies under whose jurisdiction would be the aforementioned issue.

4.1. Legislative guidelines

As of 1992 the University of Mostar performs its activity in accordance with the Law on University and the Statute adopted in conformity with it. A total of five following cantons are financing the University according to this Law [16]:

- Herzegovina -Neretva,
- West Herzegovina,
- Central Bosnia,
- Herzeg-Bosnia Canton¹ and
- Posavina.

In 2007 the Framework Law on Higher Education in Bosnia and Herzegovina was adopted with the obligation of cantons to adopt cantonal laws on higher education on the basis of that Law [17]. Of course, this has not been done within a defined term (period). University of Mostar has continuing its activities in accordance with the aforementioned Law on University.

At the beginning of 2012 the long - awaited Law on Higher Education of the Herzegovina-Neretva Canton and aders four Kantons was adopted and followed by the new Statute of the University of Mostar a year later. By analyzing the mentioned laws relating to the part dealing with the University financing it can be concluded that it is only about two articles defining it, and they read as follows:

(1) The higher education institution acquires funds for performing its activities:

from the funds of the founders; resources of Funds; donations, wills and gifts; tuition fees; sale of intellectual, cultural, material and commercial goods and services; revenues based on copyrights and patents and from other sources in accordance with the Law.

(2) The method of financing higher education institution shall be regulated by the Articles of Incorporation and Statute.

(3) The higher education institution organizes internal audit of operations in accordance applicable regulations.

In one Article regarding financing a by-law – Statute reads as follows [18]:

Founders shall provide financial base in the budget for the University's operation.

The funds referred to in paragraph 1 of this Article shall be provided for:

- salaries and benefits of staff, and material costs;
- the most essential level of scientific, artistic and professional activities at the University;

¹ Currently Canton 10

- operation of the service, which activity ensures the integrity and necessary standard of the University;
- working and living standards of staff, development and investment.

4.2. The analysis and assessment of the situation

This clearly indicates that the reality looks very different. The mentioned budget has turned into a grant and that further leads to various disorders in terms of delay, reduction and general uncertainty and constant "struggle" for what was clearly defined by the Law and Statute.

What to do in such a situation? The question is simple but the answer is really complicated. The University management is facing a delicate task. The only real possible solution could be to conduct continuous and persistent dialogue with the authorities, pointing to the consequences of the current approach and relationship with the presentation of comprehensive analyses including all aspects and different models of the future relationship. The aim is clear and reduced primarily on survival, and then a possible further development of the institution. Of course, the trends and experiences of others should be simultaneously followed, and in that sense work intensively on finding alternative sources of financing.

Here we deem interesting to present assessment of the situation and the possible way of an attempt of the solution [maja letica]:

„University of Mostar and University "Džemal Bijedic" are probably in the most unfavorable situation in the Federation of BiH, as well as in the whole of Bosnia and Herzegovina (which is evident from the amount of public funding sources) and almost completely dependent on private sources of financing, or tuition fees of students. They have to thank this situation to the category of grant within the budget of their founders, and this category is the most sensitive for situations of budget cuts that are rather a common occurrence than a rarity in these areas. Very often a grant is precisely a category that is completely skipped in a fiscal year. Thus, for instance, the annual budget costs of the University of Mostar, with its 11 members are at the level of 26 million KM of which some 7 million are approved through grant, and actually barely 4 million are allocated, and often less. This could be solved by introducing the full cost of tuition fees for students from the cantons of founders not fulfilling their obligations, as well as the full prices of the student dormitories and other services that accompany the student life for those students, that would voters in those counties are forced to seek accountability of the authorities, but this again delves into the category of social sensitivity and political - interest relationships, what would force voters from those cantons to seek accountability of the authorities, but that again delves into the category of social sensitivity and political and interest-based relations, and the fact that in

the management boards of these universities are sitting precisely representatives of these founders who are not fulfilling their obligations and still have the right to decide what is a paradox in itself”.

Seen from the point of view of already mentioned financing models of the University treating the public and private (other) sources of financing on the example of the University of Mostar it is noticeable the orientation to the other type of financing in which structure the most important place is occupied by revenues from tuition fees.

Apart from the above explanation for this situation we deem it necessary to emphasize the fact, and based on many years of following-up [19] the enrollment policy at the University, of a drastic reduction in the number of full-time students who are studying as later stated with the support of the Ministry. This could be characterized as normal reaction of the University, if nothing else but from the point of mere survival, but the fact especially worrying is that the enrollment policy is implemented in tandem with competent ministries. Namely, the approval for enrollment quotas for each academic year is given by all competent cantonal ministries as founders of the University.

In addition to the above, and also based on analysis, it was found a whole set of charging various services to students. These, for instance, include charging enrollment fees for all categories of students, issuance of certificates, the defense of the final and graduation papers, issuance of diplomas and the Diploma Supplement, application for repeated examinations, payment of ECTS credits and the like.

It is possible to assume what consequences will this have on the University and the wider community in the near and distant future, but obviously the alarming negative state that accumulates in both the University staff and service users and their parents has not yet reached the authorities. The conclusion poses itself that all of these stakeholders should act together and be involved in solving the problem of financing.

4.3. Students

It is well known that a student is in the center in the system of higher education and that all universities are trying in different ways to attract as many students to their members. In this sense, the University of Mostar is carrying out a series of activities in that direction, primarily by organizing a presentation of the University in the cantonal centers.

Number of students of the first and second cycle enrolled at the University in academic year is determined based on an analysis of market needs as well as spatial and staffing potential

of members and as such is consolidated at the University level and a joint call is published.². A student may be enrolled at our University in the status of:

- Full-time student who is studying with the support of the ministry and as such does not pay tuition. This category includes students who achieved the best results at the placement procedure. Their number is determined by each faculty separately. It should be noted, in the spirit of the indicators shown on income from public sources that their number is decreasing from year to year.
- Self-financing full-time student (participating in the study costs).
- Part-time student for whom funds are made available by companies or institutions in which they are employed or he/she has to pay study costs. This type of study is not provided by all members of the University.

The structure of the costs that students have during their studies [20]:

- Education costs (tuition fees, as well as additional costs for books, supplies, equipment, etc.)
- Administrative costs (various costs to be paid to the institution³)
- Living costs during studies (accommodation, food, transportation, health care, leisure time, etc.).

As it can be seen from the tables [20] as well as in numerous publications and papers dealing with this problem the focus of financing in particular and in the case of the University is transferred on the student (beneficiary) and his or her parents. To what extent it can go and what the consequences will be it is difficult to assume, but the fact that this is not a solution to the problem and should be dealt with at a global level. This further opens a series of problems and one is a basic "equal access to education for all"? Is it feasible in that way? The conditions in which we live open a new dimension in the issue of higher education financing known as the social component. Extensive discussions and analyses are carried on that issues in the surrounding and Europe in general and the fact is that this is a new challenge to which an adequate response should be given. It should be noted that all the documents and all sorts of declarations and recommendations recognize this issue already being present in the adequate legal solutions. As an example, the definition in Article 7 of the Framework Law on Higher Education in BiH is stated below:

„Access to higher education within the scope of which the licensed higher education institutions operate in Bosnia and Herzegovina shall not be restricted, either directly or indirectly, based on any realistic or assumed basis such as: sex, race, sexual orientation, physical or other disability, marital status, color of skin, language, religion, political or other

² Enrollment of students in postgraduate doctoral studies is done on the basis of specific call published by members organizing those studies.

³ Already mentioned in the previous chapter

opinion, national, ethnic or social origin, affiliation with an ethnic community, property, birth, age or any other status. “

5. DEFINING THE ACCEPTABLE PROPOSAL MODELS

At the end of 2014 and throughout 2015, the management of the University are working towards defining an acceptable mechanism for the data acquisition, or rather to provide further insurance funds for their normal functioning. Below will be given three models of which the third model should represent the best strategy for providing institutional funds at the moment.

5.1. Model 1.

This model represents the calculation of the required financial funds for the financing of human resources (teaching and non-teaching staff), and the basis for its calculation is:

- Higher Education Law in Herzegovina-Neretva Canton [16]
- Regulation on the criteria, standards and norms in higher education in Herzegovina-Neretva Canton [21]

The following charts provide an overview of necessary funds by the above model.

Table 1: Review of annual planned costs regarding total external cooperation by the planned teaching standard in 2014.

Track number.	Description	Professor	Associate professor	Assistant professor	Senior assistant	Assistant	Lector	Lecturer	Total
1	External cooperation-performed	19.514	10.818	22.659	7.691	16.742	780	5.969	84.173
2	Structure in %	23,18%	12,85%	26,92%	9,14%	19,89%	0,93%	7,09%	100,00%
3	Planned external cooperation-staff	137,75	76,36	159,95	54,29	118,18	5,51	42,13	594,16
4	Standard hours	150	150	150	300	300	150	150	
5	Planned external cooperation- the total number	20.662	11.454	23.992	16.287	35.454	826	6.320	114.994
6	The cost of an hour of external cooperation (gross amount)	59,97	53,97	47,98	29,99	23,99	29,99	29,99	
7	The total planned cost of external cooperation-necessary funds annually	1.239.119	618.239	1.151.059	488.371	850.480	24.765	189.513	4.561.545

Table 2: Summary of annual salary costs of non-teaching staff- the real state in 2014.

Track number	A member of the University of Mostar	Salaries of non-teaching staff	Participating interest in %	Number of non-teaching staff
1	Academy of Fine Arts	67.268,40	1,70%	3
2	Faculty of Agriculture and Food Technology	214.756,92	5,41%	10
3	Faculty of Economics	289.874,88	7,31%	15
4	Faculty of Civil Engineering	225.766,92	5,69%	10
5	Faculty of Medicine	350.100,00	8,83%	17
6	Faculty of Philosophy	599.744,40	15,12%	29
7	Faculty of Law	204.439,20	5,15%	10
8	Faculty of Science	1.018.142,76	25,67%	52
9	Faculty of Engineering and Computer Science	194.145,00	4,89%	10
10	Faculty of Pharmacy	101.999,88	2,57%	4
11	Faculty of Health Studies	306.572,88	7,73%	14
12	Vice-Chancellor's office	393.864,48	9,93%	16
	Total	3.966.675,72	100,00%	190

Table 3: An overview of the costs of a full-time teaching staff regarding planned teaching standards in 2014.

Track. number	Description	Professor	Associate professor	Assistant professor	Senior assistant	Assistant	Lector	Lecturer	Total
1	Full-time teaching staff	32	42	65	71	101	1	4	316
2	The structure of a full -time teaching staff in %	10,13%	13,29%	20,57%	22,47%	31,96%	0,32%	1,27%	100,00%
3	Plan of full-time employed staff	47	62	96	105	149	1	6	467

Table 4: Planned costs paid to permanent staff at normative provision (planned value points 500 km) in 2014

Specialization or position	amount	Engagement	Value points	Gross amount of taxes and contributions.	The total number of required staff	The total cost of wages per month	The total cost of wages per month
professor	5,50	100,00	500,00	3.376,99	48	162.095,29	1.945.143,50
Associate prof.	5,00	100,00	500,00	3.069,88	63	193.402,28	2.320.827,39
Assistant prof.	4,50	100,00	500,00	2.763,28	96	265.274,86	3.183.298,27
Senior Assis.	3,50	100,00	500,00	2.149,24	106	227.819,89	2.733.838,69
Senior lecturer	3,50	100,00	500,00	2.149,15	2	4.298,31	51.579,70
Assistant	3,10	100,00	500,00	1.903,44	147	279.805,39	3.357.664,72
lecturer	3,10	100,00	500,00	1.903,44	5	9.517,19	114.206,28
TOTAL:				49.122,03	467	1.142.213,21	13.706.558,56

Table 5: Necessary planned funds for the University of Mostar, according to standards and normative provision of Herzegovina-Neretva Canton in 2014.

Track number.	Item of financial plan	Foundation plan	Amount in KM
1.	The necessary funds for employee salaries of the teaching staff	standard and normative provision	13.706.559
2.	The necessary funds for employee salaries of non-teaching staff	Real state	3.966.676
3.	The necessary funds for the salaries of engaged teaching staff	standard and normative provision	4.561.545
4.	The necessary funds for the compensation of employees	Real state	2.666.852
5.	The necessary funds for material costs and expenses	Real state	8.056.773
	TOTAL*		32.958.404

* Note : The necessary funds do not include capital investments in fixed assets and equipments

5.2. Model 2.

This model was created using methodology developed within the project «Reform of Higher Education Financing in Bosnia and Herzegovina» [22] [23]. The model is based on study program cost calculation according to cycles and data provided by Universities [24].

Table 6. represents needs calculation for all full time students according to standards for BiH study classes based on IPA research and the number of full time students who do not pay tuition is multiplied by the full cost of the class, and the number of students who pay for tuition is multiplied by the difference between the amount they pay and the market price (economic) price of study of that class.

Table 7. represents the calculation as Table 6., but is based on the costs of study program classes at University of Mostar

Table 8. represents the calculation of public resources needed for all full time students as previously explained, but calculated for all University constituent units separately and based on the average study costs.

Table 6: Study program cost calculation at University of Mostar according to BiH IPA for 2013/2014 for all FULL TIME STUDENTS (part time students excluded)

Study class	Class description/faculty	Average cost per study	Number of stud. (13/14)	Cost of class 13/14
Klass A	Faculty of Medicine Faculty of Pharmacy Faculty of Health Studies	10.879,00	900	8.306.000,00
Class B	Faculty of mechanical engineering and Comp., Faculty of Civil Engineering, Faculty of Agriculture	4.716,00	1592	5.901.940,00
Class C	Academy of Fine Arts, Faculty of natural sciences and Math	3.625,00	2121	5.364.225,00
Class D	Faculty of Economics, Faculty of Law, Faculty of Humanities and Social Studies	2.720,00	3.601	5.612.360,00
	Number of full time students (no repeat enrollments)		8.214,00	
	Amount of Public resources needed for funding in KM			25.184.525,00
			Received	4.240.636,00
			Deficit	20.943.889,00

Table 7: Calculation of study program costs at University of Mostar according to class prices received for 2013/2014 for all FULL TIME STUDENTS (part time students excluded)

Study class	Class description/faculty	Average cost per study	Number of stud. (13/14)	Cost of class 13/14
Class A	Faculty of Medicine Faculty of Pharmacy Faculty of Health Studies	4.057	900	2.166.200,00
Class B	Faculty of mechanical engineering and Comp., Faculty of Civil Engineering, Faculty of Agriculture	3.030	1.592	3.265.400,00
Class C	Academy of Fine Arts, Faculty of natural sciences and Math	3.254	2.121	4.577.334,00
Class D	Faculty of Economics, Faculty of Law, Faculty of Humanities and Social Studies	2.637	3.601	5.421.895,00
	Number of full time students (no repeat enrollments)		8.214	
Amount of Public resource s needed for funding in KM				15.430.829,00
				Received 4.240.636,00
				Deficit 11.190.193,00

The fact that different faculties have different approaches for full time students is taken into consideration in Table 3– while some faculties have no charges, others charge an administrative fee or entrance fee varying from 100 to 500 KM and some faculties also charge tuition.

To be able to take all of this into consideration, the economic prices for cycles for a faculty are multiplied by student class based on study programs of the 1st and 2nd cycle and entrance fees and tuition were deducted. Part time students, distance center students, Ph D students and students who repeat the academic year were not included.

Table 8: Calculation of public funding needed per faculty and cycles according to study prices of the 1st and 2nd cycle for that faculty minus administrative fees and tuition per study group according to submitted data

Faculty	Cycle 1 price	Cycle 2 price	Full time	Self-fin. students	Total Cycle 1	Total Cycle 2	Total
			I + II siklus	I +II siklus			
Academy of Fine Arts	/	/	/	/	/	/	/
Faculty of agriculture, food and biotechnology	3.034,30	4.918,00	50	348	474.118,50	319.754,00	793.872,50
Faculty of Economics	2.252,00	3.636,00	226	656	993.520,00	241.652,00	1.235.172,00
Faculty of Civil Engineering	2.308,00	3.866,00	123	428	545.872,00	372.872,00	918.744,00
Faculty of Medicine	5.507,00	/	81	262	1.165.301,00	0,00	1.165.301,00
Faculty of Law	2.203,00	2.859,00	278,00	274,00	221.265,00	277.991,00	499.256,00
Faculty of Humanities and Social Studies	1.550,00	2.864,00	261	1.747	196.950,00	651.252,00	848.202,00
Faculty of natural sciences and Math (FPMOZ)	2.037,00	4.472,00	268	1.610	1.203.276,00	1.118.160,00	2.321.436,00
Faculty of mechanical engineering and comput.	2.397,72	4.837,00	169	474	736.912,12	435.514,00	1.172.426,12
Faculty of Health Studies	1.561,00	6.611,00	56	379	29.135,00	246.049,00	275.184,00
Faculty of Pharmacy	4.574,00	/	6	57,00	202.062,00	0,00	202.062,00
University total			1.518	6.235	5.768.411,62	3.663.244,00	9.431.655,62

When we compare these three Tables, it is obvious that the results presented in Table 1 are the highest and the closest to the total cost of University of Mostar operation costs (this indicates the accuracy of calculation using IPA research).

The optimal results regarding the public funding needs are provided in Table 2 – the prices per classes are maintained based on data received from University, thus taking into consideration a possibility of generating income from other sources, while Table 3 presents the lowest results and probably the most correct because it is confirmed by Table 4.

Table 4. indicates possibilities of generating funds at the observed time and circumstances (it is expected to be lower due to a continuous decrease in number of students) in comparison to expenditures (based on financial reports for 2013) and thus provides insights into deficit, and needs for public funds (0.1 % difference in comparison to Table 3)

Table 9: Comparison of expenditures vs. their own funding – analysis of minimal public funding needed

Faculty	Expenditures at faculty level for 2013	Trend of generating funds from tuition
Academy of Fine Arts	/	
Faculty of agriculture, food and biotechnology	1.514.281,00	637.200,00
Faculty of Economics	2.993.445,00	1.400.500,00
Faculty of Civil Engineering	1.420.420,00	541.900,00
Faculty of Medicine	1.888.873,00	671.200,00
Faculty of Law	2.344.064,00	1.582.600,00
Faculty of Humanities and Social Studies	5.101.109,00	4.651.210,00
Faculty of natural sciences and Math (FPMOZ)	6.017.427,00	3.811.400,00
Faculty of mechanical engineering and comput.	1.840.740,00	665.700,00
Faculty of Health Studies	1.172.763,00	1.108.200,00
Faculty of Pharmacy	288.155,00	86.100,00
Total	24.581.277,00	15.156.010,00
Difference – deficit – min public funds needed		9.425.267,00

Nevertheless, one must take into consideration that real data are used in the last two Tables and they represent real circumstances of their operation – overloaded capacities, a large number of students, excluding investments in scientific development and research.

5.3. Model 3.

This model represents financial plan of incomes for University of Mostar in the year 2015, which is based on the assumption that public incomes will increase 50% by comparison with year 2014. However, it is necessary to emphasise that in the year 2015 amount of public income has not achieved the level of year 2014.

Table 10: Financial plan of incomes for University of Mostar in the year 2015, which is based on the assumption that public incomes will increase 50% by comparison with year 2014.

INCOMES													
Organizat. unit	FROM BUDGET			OWN INCOME				TOTAL OWN INCOMES			TOTAL INCOMES		
	Budget - 2014 (estimation)	Budget - 2015 (Plan)	Index (C/B)	Students - 2015 (Plan)	Projects - 2015 (Plan)	Other - 2015 (Plan)	Income RH - 2015 (Plan)	2014 (estimation)	2015 (Plan) (E+F+G+H)	Index (J/I)	2014 (estimation) (B+I)	2015 (Plan) (C+J)	Index (M/L)
Rectorate	1.529.382,00	2.294.094,00	1,50	77.000,00	404.049,00	55.000,00	880.000,00	1.196.213,00	1.416.049,00	1,18	2.725.595,00	3.710.143,00	1,36
ALU	236.500,00	354.750,00	1,50	142.000,00	0,00	59.000,00		130.804,00	201.000,00	1,54	367.304,00	555.750,00	1,51
APTF	521.592,00	782.389,00	1,50	721.263,00	254.157,00	11.068,00		931.900,00	986.488,00	1,06	1.453.492,00	1.768.877,00	1,22
EF	300.000,00	450.000,00	1,50	2.159.180,00	38.386,00	35.000,00		2.465.764,00	2.232.566,00	0,91	2.765.764,00	2.682.566,00	0,97
FARF	131.000,00	196.500,00	1,50	324.230,00	0,00	0,00		233.230,00	324.230,00	1,39	364.230,00	520.730,00	1,43
FF	652.306,00	978.459,00	1,50	4.907.289,00	0,00	40.000,00		4.825.460,00	4.947.289,00	1,03	5.477.766,00	5.925.748,00	1,08
FPMOZ	385.000,00	577.500,00	1,50	5.500.000,00	0,00	200.000,00		5.885.000,00	5.700.000,00	0,97	6.270.000,00	6.277.500,00	1,00
FSR	370.000,00	555.000,00	1,50	1.119.000,00	105.000,00	152.506,00		1.153.310,00	1.376.506,00	1,19	1.523.310,00	1.931.506,00	1,27
FZS	264.050,00	395.400,00	1,50	980.569,00	0,00	0,00		859.611,00	980.569,00	1,14	1.123.661,00	1.375.969,00	1,22
GF	375.383,20	563.074,80	1,50	480.100,00	554.064,00	138.320,00		1.338.330,00	1.172.484,00	0,88	1.713.713,20	1.735.558,80	1,01
MEF	637.400,00	980.650,00	1,54	850.000,00	25.000,00	0,00		1.025.800,00	875.000,00	0,85	1.663.200,00	1.855.650,00	1,12
PF	319.298,00	478.947,00	1,50	1.848.860,00	0,00	400,00		2.329.584,00	1.849.260,00	0,79	2.648.882,00	2.328.207,00	0,88
TOTAL:	5.721.911,20	8.606.763,80	1,50	19.109.491,00	1.380.656,00	691.294,00	880.000,00	22.375.006,00	22.061.441,00	0,99	28.096.917,20	30.668.204,80	1,09

This model could be considered as a choice of University of Mostar with attempt to define strategy of financial income assurance from public sources („state income“). This model has the advantage concerning other models because it is very realistic, especially in today's hard times when financing of higher education institutions is in question.

The aim of this model is:

- To achieve level of public income from 2008. In that year, total amount of public income that was ensured through budgets of cantons was 7.848.783,00 KM. This income enabled that 53% of total number of full time students studied with support of amenable ministries. It is important to say that this percent was 17,6% in year 2014.
- To increase number of full time students that could study with support of amenable ministries.
- Try to decrease students' fees through additional analysis.
- To make advance towards financial stabilisation which could significantly influence on motivations both teaching and administrative staff.

5.4. Recommendations

5.4.1. Management of University of Mostar and amendable ministries

- Continuous dialog between university management and proper authority, taking into account stipulations of signed Agreement between University of Mostar and cantonal governments which are owners of University.
- Finding additional financial resources through realisation of different projects.
- Work on implementation of linear fees system as some faculties already did.
- Continue with activities with aim to establish Fund for helping those students in need.
- Encourage organization units of University to make Rulebook which will define rules and conditions with the aim to help those students in need.
- Talk together with amendable ministries about different models of helping students, especially those students in need.
- Establish new study programs according to the needs of business sector and labour market. With new study programmes attract more students at University.
- Actively work on developing efficient ALUMNI.
- Find financial resources for additional education and training of university staff. The aim is to improve quality of teaching and ensure efficient research.

5.5. Recommendations and possible mechanisms of financial support to students

5.5.1. Students scholarship

Adequate reviews of international research [25][26] show that scholarships positively effect on access to higher education (within the meaning of number of enrolled students). On the contrary, decreasing of scholarships evidently has negative effect on trends of enrolled students. Apart from scholarships contribution in growth of participation in higher education; research showed that correlation between scholarships and finishing of study is greater in students groups with lower incomes, meaning that those students evidently give up less from study if they have scholarships.

Because of already mentioned reasons, scholarships present the important measure in enabling the accessibility of higher education to students from marginalized groups, which evidently positively influence on the fairness of access to higher education. The recommendation is that scholarships should be the main component of financial support system for students in BH and its entities and cantons.

5.5.2. Students loans

Students loans present a way of resolving problem of liquidity for students who have to cover costs of higher education, but who have no direct access to necessary financial resources, nor through their own incomes nor through family support. Students loans with state guarantee could be pay off by instalments through agreed time period, or repay could depend on salary rate (per example, the repay of loan start when graduate find a job and reach minimal level of salary), or repay could be done through graduate tax in which case the graduates will have obligations to pay higher tax on their incomes.

The importance of students loans for systems of higher education is in that enables financial support to students, but on long term it present the form of costs split since students have to return money. Taking into account that the costs of loans (on the long term) are lower of the costs of scholarships, the loans could be offered to greater number of students than scholarships.

Although students loans could be valuable source of support for great number of students, it should not be seen as a solution for increasing access to higher education among students who origin from families with lower incomes. The researches show that effect of financial support of students loans positively influence on finishing studies among students of middle or higher incomes, but they are not efficient when the students with lower incomes are in question. On the other hand, the studies show that opposite is worth for scholarships.

Recommendation could be: If the use of students loans is considering, they should be incorporated into integral system of financial support for students, which should combined scholarships and loans, taking into account that target group for loans are students from families with average, not low incomes.

5.5.3. Indirect financial support

System of financial support should ensure coverage of direct (fees, learning materials) and indirect (living, food, cloth etc.) costs of study for students who prove that they need financial support. That include not just students of lower socioeconomic status, but also and other students categories that have financial problems, like students that are not living with their family, students who are parents or students who from some other reasons need financial support (students with disabilities). The principle of financial accessibility should ensure that students system of financial support promotes fairness in higher education.

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