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Development

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CONTENT

1. Introduction

This Report contains an overall evaluation of the syllabi proposed by the Serbian and Bosnian Partners in line with the aims of the SETOF Project. The content of this Report concerns a general evaluation by institutions with a final questionnaire that synthesizes the general aspects. Details on single subjects are reported in the companion Report in which Questionnaires and suggestions are provided.

2. Evaluation of modernized/new syllabi on existing study programmes for each partner

Faculty of Forestry, University of Banja Luka (UBL)

Analysis on existing study programmes - The following information has been deduced from the English version of the website (<http://sf.unibl.org/index.php/lat/>). Based on the data reported, the Faculty of Forestry offers 1 study programme for the 1st cycle (Bachelor Degree), named 'Forestry' and 2 study programmes for the 2nd cycle (Master Degree), named respectively 'Forestry' and 'Management of forest resources'.

In the programme related to the Bachelor Degree, specific topics on Erosion or Torrent control are not included in the compulsory courses. However, the elective courses on 'Land Degradation' and 'Anti-erosion afforestation systems' have a general focus on problems related to erosion, basic soil conservation measures and afforestation of degraded land. Courses on Hydraulics, Hydrology, Torrent control are not included in the study programme.

No information is available about the courses for the 2nd cycle.

Analysis and evaluation of improved curricula - The proposal of the Faculty concerns the following four courses for improving the 1st cycle

1) Forest eco-climatology – compulsory

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- 2) Forest soils – compulsory
 - 3) Land degradation – elective
 - 4) Forest utilization 2 – elective

and the following two courses for improving the Master degree

- 1) Sustainable land management and global trends - Compulsory
- 2) Syndinamics of forest phytocaenosis – Compulsory

My general opinion about the attempts to improve the existing programmes on the 1st cycle is fine. More specifically, the proposed programmes are ok in terms of topics and activities. However, in some programmes, it would be necessary to include some words that explain to which extent (spatial and temporal scale) topics like soil erosion will be treated. It would be also necessary, trying to give information not limited to national scale but related to worldwide problems. Among the limitations, it is worthy noticing that no topics that concern torrent control are included in the programmes.

Also, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications produced by the teachers for the new topics.

About the attempts to improve the existing programmes on the Master Degree, my general opinion is fine. Both the proposed programmes are well structured. Maybe, more emphasis should be given to types of utilizations that reduce the impact of soil erosion. However, even for this study cycle, no topics related to torrent control are included in the programmes. Also, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications produced by the teachers for the specific topics.

Another important thing, necessary, in my opinion, to be in line with the emergency, would be the possibility to include on-line classes (or at least, the possibility to organize them, where necessary) in the teaching methods. This would apply for both Bachelor and Master studies.



QUESTIONNAIRE - Faculty of Forestry, University of Banja Luka

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?			X		
How do you rate competence of teaching staff regarding improved study programme?					X
Are the new/modernized curricula attractive for students/engineers?					X
Rate quality of teaching material.		X			
How do you assess access to literature and database?		X			
Rate learning obligations.					X
The overall rating of modernized study programme.					X
Do new/modernized subjects increase chance for employment of engineers?					X
Do new/modernized syllabuses met requirements and global trends related to soil erosion and land degradation?				X	
Do new/modernized syllabuses improve students' competencies and learning outcomes?					X
Do new/modernized subjects improve competencies of engineers?					X



Faculty of Forestry, University of Sarajevo (UNSA)

Analysis on existing study programmes - The following information has been deduced from the English version of the website (<https://www.sfsa.unsa.ba/web/>). Based on the data reported, the Faculty of Forestry offers two study programmes for the 1st cycle (Bachelor Degree), named 'Forestry' and 'Horticulture'. Courses related to erosion and torrent control are included in the study programme 'Forestry'. The Faculty offers also 2 study programmes for the 2nd cycle (Master Degree), named respectively 'Forestry' and 'Horticulture'. Courses related to erosion and torrent control are included in the study programme 'Forestry'.

In the programme related to the Bachelor Degree, specific topics on Erosion or Torrent control are included in the compulsory and elective courses.

In the programme related to the Master Degree, topics on soil erosion are included in the elective courses of 'Soil protection' and 'Eroded terrain remediation methods'.

Analysis and evaluation of improved curricula – The proposal of the Faculty concerns the following three courses for improving the 1st cycle

- 1) Torrent control;
- 2) Methods of rehabilitation of eroded terrains;
- 3) Pedology 2.

and the following five courses for improving the Master degree

- 1) Degradation and remediation of soil
- 2) Soil protection
- 3) Sustainable land management in space planning
- 4) Melioration of degraded forests
- 5) Reforestation of bare karst land

My general opinion about the attempts to improve the existing programmes on the 1st cycle is fine. More specifically, the programmes include important topics that are in line with the aim of



the project even if some of them seem too ambitious. Also, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications produced by the teachers for the new topics.

About the attempts to improve the existing programmes on the 2nd cycle, I think that much effort has been made. However, in one case, more specifically for the Course 'DEGRADATION AND REMEDIATION OF SOIL' the overall contents are not enough and some of them overlaps with the course of 'Methods of rehabilitation of eroded terrains'. I suggest to refine these 2 programmes to avoid overlapping.

Also, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications produced by the teachers for the specific topics.

Another important thing, necessary, in my opinion, to be in line with the emergency, would be the possibility to include on-line classes (or at least, the possibility to organize them, where necessary) in the teaching methods. This would apply for both Bachelor and Master studies.

QUESTIONNAIRE - Faculty of Forestry, University of Sarajevo

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?					X
How do you rate competence of teaching staff regarding improved study programme?			X		
Are the new/modernized curricula attractive for students/engineers?					X
Rate quality of teaching material.		X			
How do you assess access to literature and database?		X			
Rate learning obligations.				X	



The overall rating of modernized study programme.				X	
Do new/modernized subjects increase chance for employment of engineers?					X
Do new/modernized syllabuses met requirements and global trends related to soil erosion and land degradation?				X	
Do new/modernized syllabuses improve students' competencies and learning outcomes?				X	
Do new/modernized subjects improve competencies of engineers?				X	

Faculty of Agriculture, University in Novi Sad (UNS)

Analysis on existing study programmes – An attempt to retrieve information on the courses via website failed because the English version of the website (<http://polj.uns.ac.rs/en/node/97>) does not contain details on the programmes. The following information has been deduced from the report 2.3 provided by the University of Novi Sad within the SETOF activities. Based on the data reported, the Faculty of Agriculture offers 13 study programmes at BSc level, 14 at MSc Level, 1 integrated BSc+MSc study programme, and 3 study programmes at PhD level. Only the study programme 'Water Management' was considered in the attempt to improve the offer. Within this programme, some courses related to Erosion and torrent control and Soil and water conservation are available.

Analysis and evaluation of improved curricula – The proposal of the Faculty concerns the following four courses for updating the BSc level

- 1) Engineering Hydrology
- 2) River engineering



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- 3) Bioregulation
 - 4) Soil Conservation Structures

and the following course for updating the Master degree

- 1) Soil and Water Conservation

In addition, the following two new courses, for improving the Master degree are proposed

- 1) Decision making in soil erosion and torrent control
- 2) Application of GIS in protection against torrential floods

My general opinion about the attempts to improve the existing programmes on the 1st cycle is fine. More specifically, the programmes include important topics that are in line with the aim of the project even if some of them (like 'Bioregulation') seem too ambitious and it could be useful reducing the programme by removing some topics already included in other courses (see my Report 3.1 for details). In general, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications in English produced by the teachers for the new topics.

About the attempts to improve the existing programmes on the Master Degree, I think that much effort has been made. However, in one case, more specifically for the Course 'SOIL AND WATER CONSERVATION', it seems to me that some topics overlap with those of other subjects. For example, the topics related to Mechanisms of formation, operation and development of erosion processes already reported in the subject of 'BIOREGULATIONS' and in the subject of 'SOIL CONSERVATION STRUCTURES' and can be removed. The other programmes look very well structured.

However, in all cases, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications in English produced by the teachers for the specific topics.



Another important thing, necessary, in my opinion, to be in line with the emergency, would be the possibility to include on-line classes (or at least, the possibility to organize them, where necessary) in the teaching methods. This would apply for both Bachelor and Master studies.

QUESTIONNAIRE - Faculty of Forestry, University of Novi Sad

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?					X
How do you rate competence of teaching staff regarding improved study programme?				X	X
Are the new/modernized curricula attractive for students/engineers?					X
Rate quality of teaching material.					X
How do you assess access to literature and database?				X	
Rate learning obligations.					X
The overall rating of modernized study programme.					X
Do new/modernized subjects increase chance for employment of engineers?					X
Do new/modernized syllabuses met requirements and global trends related to soil erosion and land degradation?					X
Do new/modernized syllabuses improve students' competencies and learning outcomes?					X
Do new/modernized subjects improve competencies of					X



engineers?					
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Faculty of Occupational Safety, University of Nis (UNI)

Analysis on existing study programmes - The following information has been deduced from the English version of the website (<https://www.znrfak.ni.ac.rs/ENG/09-Studies.html>) and from the report 2.3 provided by the University of Nis within the activity of the SETOF. Based on the data reported, the Faculty offers two study programmes at the level of Bachelor degree and five study programmes at the level of Master degree.

Analysis and evaluation of improved curricula – The proposal of the Faculty concerns the following course for updating the BSc level

1) Soil protection

and the following course for updating the Master degree

2) Climate change adaptation

In addition, the following new course, for improving the Master degree is proposed

3) Soil erosion and torrential floods protection

My general opinion about the attempts to improve the existing programmes on the 1st cycle is positive. More specifically, the idea to include a course of 'Soil protection' is well in line with the general aim of the project. My only doubt is that the content seems too ambitious to be given in only 2 lectures and 2 practical classes. However, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications in English produced by the teachers for the new topics.



About the attempts to improve the existing programmes on the Master Degree, I think that the inclusion of the course in 'Soil erosion and torrential floods protection' falls very well within the scope of the project. In general, the programme of the latter and of the improved course of 'Climate change adaptation' look very well structured.

However, in all cases, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications in English produced by the teachers for the specific topics.

Another important thing, necessary, in my opinion, to be in line with the emergency, would be the possibility to include on-line classes (or at least, the possibility to organize them, where necessary) in the teaching methods. This would apply for both Bachelor and Master studies.

QUESTIONNAIRE - Faculty of Occupational Safety, University of Nis

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?					X
How do you rate competence of teaching staff regarding improved study programme?			X		
Are the new/modernized curricula attractive for students/engineers?					X
Rate quality of teaching material.		X			
How do you assess access to literature and database?		X			
Rate learning obligations.				X	
The overall rating of modernized study programme.				X	
Do new/modernized subjects increase chance for employment				X	



of engineers?					
Do new/modernized syllabuses met requirements and global trends related to soil erosion and land degradation?					X
Do new/modernized syllabuses improve students' competencies and learning outcomes?					X
Do new/modernized subjects improve competencies of engineers?					X

Forestry Faculty, University of Belgrade (UB)

Analysis on existing study programmes - The following information has been deduced from the English version of the website (<http://www.sfb.bg.ac.rs/en/study-programs/undergraduate-studies-bachelor/>), for the Bachelor degrees, and from the English version of the website (<http://www.sfb.bg.ac.rs/en/study-programs/masters-degree-studies/>) for the Master degrees. Additional information has been also deduced from the report 2.3 provided by the University of Belgrade within the activity of the SETOF. Based on the data reported, the Faculty offers a very well structured study programme on 'Ecological engineering for soil and water resources protection' both for the Bachelor and the Master degrees. This programme includes specific themes on soil erosion and torrent control and the improved curricula relate to this study programme.

Analysis and evaluation of improved curricula - The proposal of the Faculty concerns the following new courses for updating the BSc level

- 1) Revitalization of Small Water Flows
- 2) Climate change and natural hazards management
- 3) Basics of forest hydrology



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- 4) Hydraulics of open channel flow
 - 5) Economics of the soil and water resources protection
- 1) Soil conservation
 - 2) Organization of anti-erosion works
 - 3) Management of soil and water resources in protected areas

In addition, the following new courses, for improving the Master degree are proposed

- 1) Surface water resources
- 2) Stabilization of the terrain

My general opinion about the attempts to improve the existing programmes on the 1st cycle and 2nd cycle is very positive. I have a few suggestions to improve their proposal and these are listed in details, subject by subject, in my report.

However, in all cases, the literature can be improved by including additional resources in English. In some cases, it would be more appropriate to include publications in English produced by the teachers for the specific topics.

Another important thing, necessary, in my opinion, to be in line with the emergency, would be the possibility to include on-line classes (or at least, the possibility to organize them, where necessary) in the teaching methods. This would apply for both Bachelor and Master studies.

QUESTIONNAIRE - Faculty of Forestry, University of Belgrade

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?					X
How do you rate competence of teaching staff regarding improved study programme?					X
Are the new/modernized					X

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curricula attractive for students/engineers?					
Rate quality of teaching material.					X
How do you assess access to literature and database?					
Rate learning obligations.					X
The overall rating of modernized study programme.					X
Do new/modernized subjects increase chance for employment of engineers?					X
Do new/modernized syllabuses met requirements and global trends related to soil erosion and land degradation?					X
Do new/modernized syllabuses improve students' competencies and learning outcomes?					X
Do new/modernized subjects improve competencies of engineers?					X

3. Evaluation of modernized/new syllabi on existing study programmes on the level of project

Considering the devastating impact caused by soil erosion processes and by extreme floods on landscapes of different geographic contexts, their effects can only be fully addressed through significant advances in interdisciplinary scientific and societal approaches. Because of the different geographic areas and the traditions that characterise the university involved in the SETOF Project, the overall analysis then related to the subjects in which the keywords of '*Soil Erosion*' and '*Torrent Control*' can be recognised.



Based on the information listed in the previous paragraphs, related to each single institution, and on the specific comments reported in the companion report for each single subject, the overall evaluation can be made for the programmes related to the aims of the SETOF project.

The subjects considered in the new syllabi on the existing study programmes relate to Climatology, Geology, Pedology, Mechanics, Civil Constructions, Geodesy and GIS, Forest planning, Silviculture operations etc.. These programmes are treated more or less by all the Faculties involved in the Project but with a different degree of expertise.

The programmes proposed by the Faculty of Forestry of the University of Banja Luka focus the attention on Land Degradation and Desertification issues. These are, in general, well structured but a specific subject on torrent control cannot not really be recognised in their proposal.

The programmes proposed by the Faculty of Forestry of the University of Sarajevo include the two issues of soil erosion and torrent control. Specific attention to pedology is given and this is important, in my opinion. However, the contents of some subjects should be extended based on the suggestions given in my reports.

The programmes proposed by the Faculty of Agriculture of the University of Novi Sad include the two issues of soil erosion and torrent control. These are well addressed and well in line with the aims of the project. Only some minor adjustments in the programmes are suggested (see details in my report).

The programmes proposed by the Faculty of Occupational Safety of the University of Nis are, in general, in line with the others and with the overall aims of the project. Clearly, considering the different traditions of the University and the competences of the staff, some specific contents on torrent control are limited but the topic of

management is very well addressed and I think this is important considering the interdisciplinary aspect of the problems.

The programmes proposed by the Faculty of Forestry of the University of Belgrade are included in a separate study programme and both the topics of Erosion and Torrent controls are very well addressed. I have no specific comments on these.

The following table synthesizes the overall evaluation of each institution for the specific topics related to soil erosion and torrent control

University	UBL	UNSA	UNS	UB	UNI
Topic					
Land degradation and Desertification	***	**	**	***	*
Erosion	**	**	**	***	*
Erosion Control	**	***	***	***	**
Basic or hydrology/forest hydrology	*	**	**	***	*
Torrent Hydrology and hydraulic		***	**	***	*
Torrent Control	*	***	**	***	**
Risk/hazard management				***	***

4. Recommendations

My specific recommendations, for each institution, are reported above, in this report. Details on subjects are included in my companion report in which questionnaires and suggestions have been considered specifically for each proposal made by the single institutions involved in the project.



However, I would like to outline that, as it emerges from my specific comments, a weak point that is common to all the proposals with very few exceptions, is related to the necessity to improve the information concerning the literature suggested. I think that, in an International Master, a larger availability of English publications and teaching material should be guaranteed. In most cases, only material in Serbian is suggested or provided.

Another point that must be addressed, considering the actual contingency related to Covid-19 problems, is the indication of possible on-line activities in the proposals. This is really important in case the traditional teaching would be impossible.

One further thing that, in my opinion, can be taken into consideration is related to the activity of teaching that must be provided during the last year of the SETOF project. Based on the way the proposals have been submitted (in agreement with the SETOF lines), it is not clear to me if the EU Partners and North Macedonia are involved only as 'Evaluators' or they will also take part in the teaching activities. If not, I think their background and competences should be exploited in training the master students.

5. Conclusions

The proposals are in general OK considering the aims of the SETOF project. I am confident that, based on the suggestions given by myself and the other partners involved in this evaluation process, the Master will have a quite strong structure to train students that want to complete their academic curriculum in the area of soil erosion and torrent control. I think that the University of Belgrade, more specifically the Faculty of Forestry, has a strong background to lead this activity and to fulfill all the recommendations into a new final programme.