

COMPOSITION OF THE EXPERT PANEL

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INTRODUCTION

Short description of the evaluated institution

NAME OF HIGHER EDUCATION INSTITUTION: Faculty of Forestry University of Zagreb

ADDRESS: Svetošimunska cesta 25, 10 000 Zagreb

NAME OF THE HEAD OF HIGHER EDUCATION INSTITUTION: Prof Milan Oršanić, Ph.D.

ORGANISATIONAL STRUCTURE: The organizational units at the Faculty of Forestry include sections, departments, Secretariat, Accounting-Financial Service and the Dean's Office. The Faculty of Forestry is characterized by symbiosis of the two sections, of which one deals with forestry, urban forestry, and nature environment protection, and the other with wood technology. Each organizational unit has its lower organizational structure. The basic organizational structure is the department. The departments (11) and their laboratories (24) were established with the purpose of organizing and improving the teaching and scientific-research activity in a section.

LIST OF STUDY PROGRAMMES: Faculty provides 20 study programs covering the following levels:

In the first level, there are four undergraduate study programs, each lasting for six semesters (three years) during which students acquire a minimum of 180 ECTS credits:

- 1. Undergraduate university study Forestry
- 2. Undergraduate university study *Urban Forestry, Nature Conservation and Environment Protection*
- 3. Undergraduate university study Wood Technology
- 4. Professional study *Wood Technology* (dislocated study in Virovitica)

In the second level, there are five graduate study programs, each lasting for four semesters (two years) during which students acquire a minimum of 120 ECTS credits:

- 1. Graduate university study Forestry: Silviculture and Forest Planning with Wildlife Management
- 2. Graduate university study Forestry: Techniques, Technologies and Management in Forestry
- 3. Graduate university study *Urban Forestry, Nature Conservation and Environment Protection*
- 4. Graduate university study Wood Technology Processes
- 5. Graduate university study Wood Products Design

Postgraduate doctoral studies at the Faculty are:

- 1. Postgraduate (doctoral) university study Forestry
- 2. Postgraduate (doctoral) university study Wood Technology

Postgraduate specialist studies at the Faculty are:

1. Postgraduate specialist university study *Ecological Landscape Design, Nature Conservation and Environment Protection*

- 2. Postgraduate specialist university study Silviculture and Forest Establishment
- 3. Postgraduate specialist university study Hunting
- 4. Postgraduate specialist university study *Forest Roads*
- 5. Postgraduate specialist university study Forest Techniques and Technologies
- 6. Postgraduate specialist university study Forest Management Planning
- 7. Postgraduate specialist university study *Improvement and Conservation of Genetic Diversity*
- 8. Postgraduate specialist university study *Wood Materials Technology*
- 9. Postgraduate specialist university study Production Organization

NUMBER OF STUDENTS (part-time/full-time/final-year)

- 351 full-time students
- 0 part-time students

NUMBER OF TEACHERS (full-time, external associates)

- 64 full-time teachers/professors appointed for scientific-teaching
- 9 external associates

NUMBER OF SCIENTISTS 64

TOTAL BUDGET: 55.976.753 kunas

MSES FUNDING (percentage): 70%

OWN FUNDING (percentage): 30 %

SHORT DESCRIPTION OF HIGHER EDUCATION INSTITUTION:

In 1898 the Forestry Academy was established as part of the Faculty of Philosophy. In 1919 the Faculty of Agriculture and Forestry was established. An independent Faculty of Forestry was established in 1960. According to the Statute of 1997 the Faculty was organized as a public institution within the University of Zagreb.

The work of the Expert Panel

For its work the Panel drew upon the Self-Evaluation Report, prepared by the Faculty of Forestry University of Zagreb. A site visit was carried out on 21.-22. May 2013. During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- The management;
- The working group that compiled the self-evaluation;
- The students, i.e., a self-selected set of students present at the interview;
- The heads of departments;
- The teachers:
- The members of studies committees
- The representatives of the scientific-research commission
- The heads of research projects;
- The administrative staff:
- The teaching assistants and junior researchers.

The Expert Panel also had a tour of the library, IT rooms, student register desk, and the classrooms at the Faculty of Forestry, where they held a brief question and answer session with the students who were present.

DETAILED ANALYSIS BASED ON STANDARDS AND CRITERIA FOR REACCREDITATION

1. Institutional management and quality assurance

- 1.1. Strategy document exists with a mission and vision. Deduced from the general Vision and Mission statements the strategy mentions seven strategic goals related to teaching activities, scientific activities, external cooperation, quality systems, and human, financial and material resources. Although the general strategy plan exists, no specific implementation plan or review mechanism is in place.
- 1.2. The organizational structure is formalized in its legal documents and provides a consistent and clear structure.
- 1.3. The documents are in line with the University goals. The future role of the professional study program is an important factor for the Faculty. The documentation and future perspectives of the graduates should be monitored.
- 1.4. The goal is to become the leading Forest Faculty in the region. This will have to include more courses of international importance and in different languages (e.g. English). It will also require an internationalization of the students and efforts are needed to engage and hire professors from outside Croatia.

- 1.5. The study programs are fully aligned with the baseline of the Croatian Qualifications Framework. However it is required to implement a policy which will guarantee the continuous feedback for ensuring the enhancement of the activities.
- 1.6. The practice that involves collection, analysis and use of relevant information is not in place yet, however, the faculty plans to establish a database for collecting information. Small response rates by students for the student questionnaire are evident.
- 1.7. The institution has formal mechanisms for monitoring and improving the teaching quality in place. This is very well done.
- 1.8. The structure and procedure for monitoring and improving the teaching quality are well done.
- 1.9. The institution has a code of ethics and an ethical committee. Mechanisms for ethical behavior in teaching and research activity are well in place. However, it remains unclear if everyone is aware of its existence. Regular information activities for the new staff and students are suggested.

2. Study programs

- 2.1. The institution has effective processes in proposing, approving and implementing of study programs. In total 20 different study programs are offered. The number of postgraduate specialist studies is high while the demand for such programs is decreasing. It is suggested to evaluation the postgraduate study programs. The employability of graduates in Urban Forestry, Nature Conservation and Environment Protection is difficult (see comments by the students). We recommend exploring the possibilities for enhancing the job opportunities.
- 2.2. The enrolment quotas are generally justified by the needs of the society. In the last few years the quotas were slightly modified; in general, they are lower than the number of applicants for study programs. However, there still exists a significant problem concerning a relative large number of students enrolled only formally who do not study at all (approximately 20 % of total number). This partly influences the passing rate of the first class of undergraduate study, which is relatively low. According to the opinion of students in the above mentioned questionnaire the second reason for low passing rates is high workload for students of the first year. We suggest considering the quotas for students of the first year of undergraduate studies. It will be worth discussing if lower quotas could prevent "formal student" and students with lower level of pre-knowledge from enrolling and thus improve passing rates into the second class.
- 2.3. The enrolment quotas are in line with the institutional resources.
- 2.4. Student learning outcomes describe the knowledge and skills of a graduate. It is important to mention that Urban Forestry, Nature Conservation and Environment Protection do not ensure employability of graduates. It seems that there are niches in society for the

- employment of these graduates, but qualification/capacity of graduate students are not recognized yet in the job market.
- 2.5. The teachers ensure that the assessment of the student learning is aligned with the stated learning outcomes. In regard to this issue, panel members do not have any special remarks. In the questionnaire it was stated that the workload for undergraduate students of the first year is too high, as well as the workload for the last semester.
- 2.6. The allocation of ECTS reflects the realistic estimate of the students. The only exception was the undergraduate study of Wood Technology which should be verified and improved.
- 2.7. The content and quality of study programs are comparable with internationally recognized standards. The Self-Assessment suggested the need for courses and a study programs in English.
- 2.8. Teachers selected appropriate learning strategies according to the subjects. Panel members did not find any weaknesses. According to the results of the questionnaire "good relations between teachers and students" were mentioned as one of the main strengths. In addition, teaching and working in small groups was pointed out by students as strength.
- 2.9. The faculty made available an appropriate amount of supplemental resources.
- 2.10. The Faculty has excellent facilities for field work and good opportunities for practical work. According to the answers to the questionnaire, the students would appreciate an even larger amount of practical work/field exercise, which seems to be unrealistic, since the amount of such work in the current study programs is quite high, and as increasing it would raise the cost of the study programs.

3. Students

Opening statement by the panel: Besides the official items to discuss we asked the participating students to list the strengths and weaknesses. The results of this survey are given in Appendix 2 (separate file)

3.1. The competencies of applicants evaluated upon admission are mostly aligned with the competencies required in their future careers. In undergraduate studies there is a certain inhomogeneity as to the completed secondary school, which results in considerable discontinuity of the students' prior knowledge. Compared to specialist schools, the proportion of grammar school students is quantitatively satisfactory only in undergraduate studies of Urban Forestry, Nature Protection and Environmental Protection. Drop-out after the first year is high, that is why the pass rates in the first year at all undergraduate studies are not satisfactory. The Faculty should take certain measures in order to define the limits of optimal pass rates. The Faculty should work systematically to attract more grammar school graduates from the area. Some necessary information about the level of study programs, qualifications and academic titles as well as possibilities for further education and employment are available at the Faculty website http://www.sumfak.unizg.hr. The website also contains useful general information about conditions for enrolment.

- 3.2. The institution supports students in their extracurricular activities. The Faculty Library is supplied with several computers available for use by the students during breaks after the lectures, or when they are studying for their exams. Students can also use their own laptops and the free internet network available at any place within the Faculty premises. A free course in mathematics has been held at the Faculty for prospective students before the beginning of the studies. The students were satisfied with it, the attendance was good, and the refresher course helped them with the regular study course in mathematics. The Faculty has its own sports hall whose main purpose is the course in the study subject of Physical and Health Culture. Students can also use it for sports or physical exercise upon agreement with the teacher and Quercus, the Students' Sports Group. The Faculty students can be members of the Students' Forestry Union, a branch of the Students' Association, as well of the Croatian Society of Wood Technicians and Furniture Designers, an independent students' organization. The Students' Union and other mentioned organizations have their own premises sufficient for the work of its members.
- 3.3. The mentorship has not been especially organized at the Faculty, except for the work on the Rectors' Prize, diploma, or specialist and doctor's thesis. On entering PhD studies the applicants are informed on their advisor, who will help him/her during the studies until the nomination of the mentor.
- 3.4. The institution regularly monitors the level of student standards. The organization of food service at the Faculty is not satisfactory. The restaurant is also used by the students of the Faculty of Agronomy. The students from both faculties spend too much time in queuing for their meals. The students actively participate in cultural, sports and general social events offered by the Faculty. The Forestry Faculty has no student accommodation capacities except on field studies or in the case of exchange students. The five apartments in the new building of the Faculty suffice for the accommodation of the international exchange students.
- 3.5. The Faculty constantly monitors the levels of student knowledge. Students are satisfied with the exam timetable published in advance, sufficient number of exam deadlines and the possibility of med term exams. Students are satisfied with the relationship between students and teachers. However, some students expressed their discontent with the first year workload. The students expressed that the first year and last semester workloads are too high.
- 3.6. The Faculty keeps insufficient records on the employment status of the finished students and their careers. Alumni organizations do not exist but the foundation and activation of the Finished Students Club (alumni) is currently in progress. The Faculty has contacts with the market and with the Forest society that gathers their alumni.
- 3.7. The Faculty has an active Students' Council that maintains positive relations with the Faculty management. The Faculty supports the work of the Student Council. The Student Council is involved everywhere.
- 3.8. The institution regularly informs the public about its study programs, learning outcomes, qualifications and employment opportunities. Upon the approval of the study programs at the Forestry Faculty which follows the Bologna model, three promotional books have been issued. All information related to the Forestry Faculty is available on the internet site

www.sumfak.unizg.hr. The Faculty's e-mail (dekanat@sumfak.hr) is available to the interested applicants, who are welcome to ask questions on study programs, enrolments, education, employment possibilities, etc. However, some students would like to have the Faculty promoted better due to its negative public perception.

- 3.9. Students can completely express their opinion and proposals for improvement through the Student Council, the e-learning portal and the Students' opinion surveys. The e-learning portal, which is accessible to students, contains a column in which students can electronically put their questions, comments, suggestions and problems to the vice-dean. Students' opinion surveys are regularly carried out each academic year and each semester, on every study program, subject, teacher and collaborator, non-teaching staff, resources and support given to the students. The students can express their opinions on the relations between the teachers and themselves through the students' poll survey in the ISVU system, and through the polls per individual courses carried out by the teachers. The survey is carried out each semester after the finished lectures and exercises and before the examinations.
- 3.10. Students are informed about the implemented measures on the basis of their suggestions and opinions since they are part of the committees.

4. Teachers/Professors

- 4.1. The qualifications of the teachers/professors are adequate for the strategic goals of the faculty and cover core disciplines. The Faculty should try to employ internationally recognized staff to become a leading institution of higher education. Considering the large number of external associates (12%, 29-71% of teaching hours) and uncertainty of financing them the Faculty should recruit more teaching assistants to support its own highly specialized teaching staff.
- 4.2. The Faculty has a general policy of growth and development of human resources. Considering the ratio between the number of professors and junior researchers (1:0.8) and potential retirements the Faculty should recruit more assistants and junior researchers to ensure the sustainability of the educational and scientific activity.
- **4.3.** The Faculty employs sufficient numbers of full-time teachers to ensure the quality and continuity of teaching in most study areas. However there is a deficiency of teachers and a need for external associates in Urban Forestry, Nature Conservation and Environment Protection studies and in practical classes. Since many teachers are overloaded, the recommendation is to employ more teachers and to balance or decrease the workload between the staff more equitably.
- 4.4. The Faculty maintains a satisfactory student to full-time teacher ratio (10:1). The ratio is however unfavorable for practical classes in most subjects specialized. This could be significantly improved if more staff with scientific-teaching titles were employed.
- 4.5. The Faculty has a moderately-developed policy for teaching staff that ensures its development as needed to advance the Faculty's mission. Scientific activity and adequate scientific qualifications of the teaching staff are required. Development is stimulated by periodic assessment of the staff's qualifications and continual need for updating and

upgrading of the study programs. There is systematic training in the field of teaching methodology, didactics, pedagogy and psychology. The Faculty motivates teachers with awards, acknowledgements and earlier promotions. Despite the institutional attention to human resources, which includes support in preparation of the written teaching materials, attending doctoral and postdoctoral studies abroad, study visits to domestic and foreign institutions, participation in domestic and international projects, conferences, workshops and courses, there is unsatisfactory activity regarding monitoring of the professional development of teachers. It is recommended that the professional development of teachers is increased by greater mobility and more international cooperation.

- 4.6. The institution has developed its own methods of assessing the qualifications and expertise of its teaching staff, which are an extension of the national criteria for employment and promotion. The survey, analysis and assessment of work performance of teachers are carried out periodically during the procedure necessary for promotion and this is defined by the University Statute and Statute of the Faculty of Forestry.
- 4.7. The Faculty has a satisfactory policy governing the assignment of teachers' workloads, which includes teaching, research and student consultations. The full-time teaching load (240-360 h/year) allows the equitable distribution of teachers' effort among teaching, research and mentorship. The satisfactory age, qualifications, competence, commitment and good relations with colleagues and students help to link education with research. Committee work and administrative work should be reduced in favor of the preparation of grant proposals. It is recommended that systematic monitoring of the balance between teaching, research, mentorship, student consultations and administrative work, particularly for full-professors, is introduced.
- 4.8. The Faculty ensures and takes care that its teachers hold a substantial commitment to their teaching and research responsibilities and that these obligations are not compromised by a teacher's commitments to other institutions. The Faculty has formal procedures for external engagement. It approves teaching classes held by teachers at other faculties of the University of Zagreb and other higher education institutions in the Republic of Croatia and outside Croatia. This policy began last year. It regulates the issue of cooperation among the constituent parts of the University as well as inter-university cooperation. If there is no cooperation agreement, the Faculty must obtain prior consent of the rector. The work outside the University of Zagreb cannot exceed one third of the full-time teaching load.

5. Scientific and professional activity

5.1. A research strategy at the Faculty still needs to be defined. The general outline for its development has been set, but clear content-based research priorities still need to be defined. The inclination towards international project-based research is quite apparent, but the specific research goals regardless of the funding situation remain unclear. There is a need for the creation of research themes that would reflect both internationally relevant subjects, as well as topics characteristic and unique to the region. This would enable placing the research at the Faculty in a position to not only attract funds, but to also serve as basis for the improvement of education process which is important for the desired positioning of the Faculty as the regional leader.

- 5.2. The Faculty is aware of it national and international role and has established cooperation with similar institutions in neighboring countries, participates in international organizations and networking programs, cooperates with other faculties and scientific institutes (research projects, scientific conferences, providing professional assistance to industry).
- 5.3. Research is the focus of the Faculty strategy and considered as one of the core activities supported by field teaching, research facilities, international and national research activity, networking through COST, IUFRO, etc., publishing (scientific journals, books, monographs, etc.) and teaching activities. Research of teachers is at the center of the study programs, especially in doctoral studies.
- 5.4. Faculty is active in preparation of programs for scientific conferences on various forestry and wood technology topics, and faculty employees participate actively in those events. Depending on the topic, conferences are organized together with the Croatian Academy of sciences and arts, and also with Croatian Forests Ltd., putting the Faculty in the public eye and enhancing its impact, visibility and public image. Two of the professors are members of the Croatian Academy of sciences and arts.
- 5.5. Research excellence of young teachers is compromised through reluctance to go abroad for longer periods of time due to the teaching and administrative workload. Insufficient financing of scientific and research activities is also hindering the quality of research, as is the quality of equipment in the laboratories. In reference to the quality of equipment in the laboratories however significant progress has been made as of late. The support to young scientists is strong. There is an overall good working atmosphere and good relations with mentors, where the contact is informal and young scientists are encouraged to develop new, fresh ideas. Although the burden of their teaching commitments is quite high, the participation of young scientists in the work of international research teams, especially in connection to their PhD theses, is supported even for longer periods of time.
- 5.6. Although the importance of research excellence is widely acknowledged, it is still not formalized, and the excellence is promoted only through the requirements of the official scientific advancement. Although a policy for encouraging academic publishing is formally lacking, publication activity is supported in several ways: (i) the faculty is the publisher of three peer-reviewed scientific journals; (ii) a Faculty member is the Editor-in-chief of another peer-reviewed forestry journal. The importance of academic publishing is acknowledged in the faculty strategy one of the strategic goals of the Faculty is to increase publication activity, especially in high-impact, renowned journals.
- 5.7. Records are kept of all scientific advancements, in the form of reports containing lists of published research papers and other evidences of scientific activity. Information on newly published papers is uploaded into CROSBI (Croatian scientific database) where links are established with contributing authors and ongoing scientific projects.
- 5.8. The collaboration with industry is one of the stronger points of the faculty. Professional activities are supported through numerous projects supported by Croatian Forests Ltd., a state-owned company managing forests in Croatia. Testing facilities issue quality certificates for all furniture sold in Croatia. Lectures organized through Croatian chamber of forestry and wood technology engineers ensure knowledge transfer to practice and certification of knowledge of employees in the field of forestry.

6. International cooperation and mobility

- 6.1. The Faculty has hosted several student excursions from Hungary, France, Belgium, Sweden and Austria. Based on inter-faculty agreements between Zagreb Forestry Faculty, Mendelova Forestry Faculty of Agriculture and Forestry Faculty in Brno (Czech Republic) and Vienna University BOKU (Austria), the exchange of students in field studies at experimental forest areas took place. The Faculty signed Erasmus bilateral agreements, and it participates in the CEEPUS program. The data on foreign field classes is regularly recorded in the Records on International Collaboration of Zagreb University. The Faculty of Forestry of Zagreb University has made a number of bilateral agreements and also the Erasmus bilateral agreements, and it participates in CEEPUS program (since 2012), which offers to students a possibility of spending one part of their studies abroad.
- 6.2. The promotion of the students' opportunity to complete some portion of their program abroad is underdeveloped, resulting in a small number of students using it. Lately an increase of interested students for participating in the Erasmus program and the students' mobility is evident. The Faculty wants to improve the students' mobility by founding an Office for International Collaboration at the Zagreb Forestry Faculty.
- 6.3. The strategic aims of the Faculty of Forestry of Zagreb University are active participation in the European Research Area (ERA) and the European High Education Area (EHEA) and systematic organized implementation of the lifelong learning program and mobility of students and teachers. While the international cooperation is underlined as one of the pillars of the faculty excellence, in practice the teachers rarely stay abroad for periods longer than several months. Incentives for teachers are relatively low for this activity and teachers find it difficult to balance their obligations in teaching with requirements of mobility. On the other hand, shorter stays are often practiced, especially for networking purposes.
- 6.4. The Faculty takes an active role in a number of international associations, such as International Association of Forestry Scientific Institutions (IUFRO), or COST, where the Faculty of Forestry of Zagreb University provides national contact persons for COST Domain Committee Forest Products and Services. Faculty staff takes part in managing the PRO SILVA Europe, and Faculty is a full member of SILVA NETWORK since 2010, a member of INNOVA WOOD since 2004, and of FORMEC (Forestry mechanization) since its foundation in 1966 and of WOODEMA since 2007. Faculty also provides support through in-kind contribution of four researchers/months to EFI European Forest Institute Southeast Europe branch.
- 6.5. Establishing study programs in English is one of the strategic goals of the Faculty. So far the majority of students from abroad have been Croatian nationals from other countries in the region. In order to attract students from other countries, it would be vital to have more courses and programs in English. Currently, two curriculum subjects are taught in English. There is a possibility for foreign students to study at the Faculty of Forestry within the framework of Erasmus and/or CEEPUS program, and to choose among different subjects in all levels. The lists of the subjects which can be taught in English upon request at the Faculty of forestry are available at the Website of Zagreb University. Of the total of thirty-four such subjects, seventeen are taught in the non-graduate studies, while the remaining seventeen are the part of the postgraduate curriculum.

6.6. International collaboration of the Faculty of Forestry of Zagreb University, apart from active participation in forestry organizations and networks, can be seen through the cooperation in international scientific projects, bilateral agreements with foreign universities and faculties, the mobility of staff and students, and organization of international conferences. This activity is strongly supported through the Faculty strategy.

7. Resources: administration, space, equipment and finances

General remark: The faculty of Forestry has very good conditions for teaching and research. The experimental forests, the support by the stakeholders and the facilities (buildings, etc.) are very good compared to other faculties in Europe. The investment in infrastructure was very smart and will help the faculty to develop a leading role within forestry in the area. However it is expected that in the near future the competition for resources may become more competitive and the strategic goals should address (i) maintaining the facilities as they are, (ii) improving some minor gaps to enhance the research activities, (iii) and invest in human capacity building to efficiently use the available resources.

- 7.1. The faculty has two buildings. The older of the two needs some improvements while the newer one provides an excellent place for research and teaching. The library is relatively small and it is suggested to initiate a campus library and merge this with libraries from other faculties. Only 2 computers are available in the library reading room.
- 7.2. Administrative staff seems to be overloaded with administration. It is suggested to review the existing enrolment procedure and administrative needs. Any regulation which is not needed should be rescinded to ensure a simple and efficient administration and budget control. Controlling measures and the transparency of the decisions must be considered.
- 7.3. It remained unclear as to what the institution's policies for the non-teaching staff are.
- 7.4. Some labs are accredited, some are not (e.g. the pedagogical lab) but they plan to be accredited. Some teachers complained about lab equipment in the survey. However, in general most of the equipment meets international standards. Some partial improvements and/or replacements of old and/or outdated tools are required.
- 7.5. Equipment for information technology, such as computers is typically outdated after five years of purchase. Page 11 of the self-evaluation: one of the weaknesses is the regular update of equipment.
- 7.6. The faculty has its own rather small library, with only two computers. It may be worth considering a merger of the faculty library with a University Campus library.
- 7.7. Financial stability of the institution is harmonized with its mission and enables all students to graduate from their programs. Sources of finance and all conditions related to financing are transparent and do not limit institutional autonomy when making decisions about teaching and research. This is well in place.



FINAL REPORT AND RECOMMENDATIONS BY THE EXPERT PANEL FOR THE ACCREDITATION COUNCIL

The Faculty of Forestry at the University of Zagreb has an excellent position to become or perhaps currently is the leading faculty of forestry in the region. The reasons for this leading role may be summarized as follows:

- 1. The geographical location provides different forest ecosystems in the near neighborhood (i) alpine forest ecosystems, (ii) flood plain forests and (iii) Mediterranean forest ecosystems. This is important for research and teaching and it is also reflected and supported by the location of the different experimental forests. This unique situation has to be strengthened and used as a marketing strategy.
- 2. The support by the stakeholders and the forest sector is strong and this needs to be secured and further maintained.
- 3. The facilities and the budget situation are strong compared to other forest faculties in Europe. The investment in infrastructure was prudent and will help the faculty to develop a leading role within in the geographical and academic area.

The key challenge for the Forest Faculty is to further develop its human capacity building program by promoting and hiring good staff members. It is important that the

- (i) Faculty members must gain experiences outside Croatia and that the
- (ii) Faculty explores possibilities for hiring professors from outside Croatia.

There is a danger in losing "competiveness" by hiring only former students who have never worked (more than a year) outside the Forest Faculty. Recruiting systems are needed to induce international competition for faculty positions. These positions have to be made attractive for foreign scientists as a research and teaching environment.

ADVANTAGES (STRONG POINTS)

Opening statement: The first part provides the result from our surveys and gives the summary by the related groups. The second part summarizes the Panel's key remarks:

Students' survey

- 1. Field practice
- 2. Good relationship between teachers and students, forthcoming teachers
- 3. Small number of students, work in small groups
- 4. Sufficient number of exam deadlines, possibility of intermediary exams
- 5. They believe they will find a job in the future

Teachers' survey

- 1. Good relationships among employees, collegiality (they are a good collective)
- 2. Good working conditions
- 3. Field lecturing

Assistants and young researchers' survey

- 1. Good relationship with a mentor and with colleagues
- 2. Good working atmosphere and working conditions
- 3. Collaboration with the industry
- 4. Possibility that young researchers have to express their ideas
- 5. Higher investments in equipment lately

DISADVANTAGES (WEAK POINTS)

Students' survey

- 1. Insufficient amount of field work
- 2. Too high of a workload for students of the first year. Too high of a workload for courses lasting one semester
- 3. Too high of a workload in the last semester of graduate studies
- 4. Wood technology neglected compared to forestry
- 5. They are worried that they will not be able to find a job once they finish a study program in Urban Forestry since it is not recognize on the market
- 6. Equipment for exercises, student restaurant
- 7. Better promotion of the faculty is needed

Teachers' survey

- 1. Lack of motivation and background knowledge of students in the first year
- 2. Lab equipment
- 3. Rising administrative workload
- 4. Insufficient time to go abroad

- 5. Insufficient financing of scientific and research activities
- 6. Teaching: coordinate the schedule and organize groups in the first year; coordinate the order of courses

Assistants and young researchers' survey

- 1. Equipment for research
- 2. Financing of research
- 3. Insufficient international and interdisciplinary relations
- 4. Uncertain future for young researchers and assistants
- 5. Lack of ordinance on evaluation of assistants and young researchers

RECOMMENDATIONS FOR IMPROVEMENT OF the QUALITY by the PANEL

1. Management of the Higher Education Institution and Quality Assurance

Is very good and should be maintained.

2. Study Programs

- 20 programs is a rather large number. We suggest an evaluation of the concept of postgraduate study programs.
- The forestry programs are very well established and successful
- The wood technology oriented programs are also very strong.
- There is a serious concern about unemployment of graduates on the program Urban Forestry, Nature Conservation and Environment Protection. We recommend the Forestry Faculty explores potential possibilities of this profile at the job market in Croatia.
- We suggest to establish a study program in English

3. Students

- Extremely motivated students, this is impressive and exceptional.
- The support by the faculty is outstanding
- The relationship between professors and students is excellent

4. Teachers/Professors

- Recruit more teaching assistants for courses with large numbers of students and for the Faculty's own highly specialized teaching staff.
- Employ more internationally recognized staff.
- Recruit more assistants and junior researchers.
- Balance or decrease the workload of some teachers.
- Employ more scientific-teaching staff for teaching practical classes.
- Increase the professional development of teachers by greater mobility and more international cooperation.
- Introduce systematic monitoring of the balance between teaching, research, mentorship, consultations and administrative work, particularly when full-professors are concerned.
- Reduce the committee work and administrative work of teachers in favor of the preparation of grant proposals.

5. Scientific and Professional Activity

- The faculty needs to improve the research strategy. Based on this strategy the hiring of staff members etc. has to be organized.
- The scientific and professional activities are very good to excellent.
- The research facilities and conditions are very good.
- The faculty needs to invest in human capacity building by promoting international experiences. This requires two main activities
 - Supporting scientists (Professors) to work outside Croatia for at least 6 to 12 months
 - Hiring permanent staff members (Professors) from outside Croatia, or at least from outside the University (e.g. experimental station etc.).

6. International Cooperation and Mobility

- The international cooperation is very good. The efforts in the past are well received.
- The mobility of the staff members is fine and the Faculty of Forestry of Zagreb has gained international reputation.
- There is always something to improve but the general development is promising.

7. Resources, Administration, Space, Equipment and Finance

- Resources, space are fine
- The administrative procedures should be carefully analyzed and maybe they can be simplified
- Regular replacement of equipment has to be guaranteed
- The finances seem to be adequate but a more active role in international research projects is needed.

Closing remark by the Panel:

We thank the Forest Faculty for the excellent preparation of the background material and the hospitality during our site visit.

We also thank the Agency for Science and Higher Education – mr. sc. Sandra Bezjak (coordinator) and Gordana Cukar (interpreter at site visit), for the perfect organization and the professional and smooth guidance through this process.

We hope that our suggestions and comments are supportive and congratulate the Forest Faculty to its performance.