

On the Education at SLU

Report to the Board of SLU on 6 November 2012.

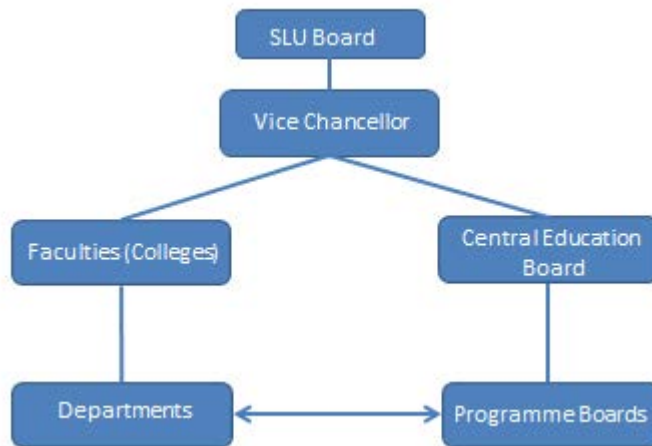
Executive summary

The Swedish University of Agricultural Sciences (SLU) is a research intense university and in contrast to all other Swedish universities its principal is the Ministry of Rural Affairs. The university is today localized at four main campuses spread from Umeå in the north to Alnarp in the south and in addition to these main campuses there are a large number of small to mid-sized localization for education and research. This makes the university unique within the Swedish education and research sector.

The most important observation of the Committee is that within SLU responsibility for education is not clear for an observer from outside, especially not the overall responsibility for the teaching costs. Most departments at SLU show deficits for teaching. The responsibility for the education has to involve what programmes and courses should be given, and the quality of these as well as respecting the budget. The diagnosis of the Committee is that a major contributor to this is the lack of a clear connection between the responsibilities for the content of the programmes and their costs. The board of SLU has clearly, in several documents, stated that the amount of education should increase, but at the same time the Ministry of Rural Affairs decreased the grant for teaching within SLU with 30 MSEK on yearly basis. This equation has to be solved.

The Committee's main advice to SLU is to change the structure of the university by forming a Central Education Board, chaired by the Deputy Vice Chancellor. This Board is strategically responsible for the quality of education and also for setting budgets for each Programme Board. These four Programme Boards should be set up to work within the strategies and budgets set by the Central Education Board. They will be responsible for the design of the study programmes under their domain and detailed budgets. In this set up the Programme Boards purchase education from departments that are responsible for the actual teaching. In this structure the learning outcomes of study programmes and courses will be the leading characteristics. For the university as a whole in this way a matrix-structure arises in which each actor has a clearly defined role and in which always responsibility for course content and budget are clearly connected.

The Committee proposes to set up four of these Programme Boards, each taking responsibility for a cohesive set of study programmes.



It is important that SLU takes a grip on the financing of the programmes and the courses through these Programme Boards. However, even with this in place, there are some measures that can be taken to increase the efficiency of SLU's education, without jeopardising the quality. The quality of the education can be defined through the learning outcomes from each course and from the total of courses that comprises one programme. We understand that SLU has quality evaluation processes of courses and programmes in place, but these processes need to be coupled to the learning outcomes, if they are not already. The Committee senses that there are large discrepancies across the SLU and its many campuses. SLU needs to become ONE university, even if located in many campuses. SLU needs to have common practices with regards to education system and evaluation, as well as financing and budgeting.

To any outsider (remember that potential students belong the outsiders), the programmes of SLU are seemingly in chaos; there are too many entry points into the university and it must be very confusing to the potential students to find their way through this. No one can know how many give up through this route. The Committee recommends that SLU's future Programme Boards have a closer look at the entry points to SLU, and try to collect similar programmes in a common programme, which can start dividing into specialities sooner or later during the years, according to how the programmes are built up. An example is the discussion the Committee has around the Agronomy programmes of today.

Conclusions:

The Committee

- proposes SLU to establish a clear delegation of responsibilities from the top management level (SLU Board) via the Central Educational Board (chaired by the Deputy Vice Chancellor) to Programme Boards, which need to be set up to take overall responsibility for a cohesive set of study programmes. This delegation should be independent of the Faculty boards and include responsibility for the education budget as well as for the overall education offering.

- proposes that SLU keeps and enhances its profile as the leading university with close ties to the management of natural resources and land use, rather than diluting its programmes further into other adjacent fields or into more basic studies.

- proposes SLU to develop and design its educational programmes with a focus on the students learning outcomes and competences.

- proposes SLU to create a “student exchange window” of at least one semester within each programme. SLU must also adopt a more flexible and tolerant view towards recognition of courses taken abroad to promote increased student exchange. The courses at Master’s level should be taught in English.

- proposes SLU to look at the course portfolio and reduce the number of courses offered across the whole university by making sure that different student groups are taught in the same course when possible.

- proposes SLU to reduce the number of elective courses by closing down or start offering them every other year instead of every year.

- proposes SLU in the short term to focus on Bachelor’s programmes with a professional profile as well as the professionally oriented longer programmes, while the general BSc- and MSc-programmes are by-products to these programmes. Further, to develop a programme in the direction of Food and Nutrition, instead of solely Food Technology, including health aspects of nutrition. In the long run a science oriented BSc-MSc structure may suit SLU better and this issue should be subject of evaluation in each strategy period.

- proposes a common framework for the five programmes in Agronomy with many joint courses in the first or two first years of the programmes. In line with this the Committee also suggests one common entry requirement for all five programmes.

- proposes SLU to move the two programmes Veterinary Nursing and Animal Ethology from campus Skara to campus Ultuna.

- proposes SLU to merge the two programmes in Landscape architecture to one location in Alnarp, keeping and further developing the two profiles. This will make the education more cost-effective and clear to the students and employers at the same time.

- proposes SLU to define the different degrees in Forest Science more clearly, to keep the Forest Management programme, 180 credits, in Skinnskatteberg, to develop the cooperation between different campuses to avoid overlapping courses and to strengthen the research profiles in the programmes.

- proposes SLU to develop a professional programme in the energy and environmental sector, based on knowledge and experience that are unique for SLU. The two existing programmes in engineering should not be presented as a part of the SLU programme offering since SLU is not formally responsible for them.

- proposes that the Equine Study programme should be concentrated to one Campus, preferably in Strömsholm, both for easier administration and for the benefit of the student social environment..

Contents

Executive summary.....	1
Introduction.....	5
Background and work process	5
Division of responsibility within SLU	5
Efficiency of resources	6
Programme Boards at SLU	7
Programme structure and location	11
Programme structure	11
Learning outcomes and progression	14
Internal strategic collaboration.....	14
Long Professional Agronomist Programmes	14
Animal Welfare and Veterinary Nursing	15
The Veterinary Nursing programme	16
The BSc in Ethology and Animal welfare	16
Landscape architecture.....	16
Forest Science	17
MSc-programmes in Engineering	19
Equine Study programmes	20
International student exchange.....	21
APPENDIX 1 Programme Boards and Budget Model	23
APPENDIX 2 Programme Boards and Programmes (based on Vice Chancellors decision on programme offering 2013/2014).....	26
APPENDIX 3 Programme overview at SLU	
APPENDIX 4 Terms of Reference for the Investigation	

Introduction

Background and work process

The SLU Board decided on an investigation regarding the localisation and structure of SLU's range of first- and second cycle education programmes. (2 November 2011, § 88/11). In accordance with this decision, the Terms of reference for the investigation were decided by Vice Chancellor the 13 February 2012 (See Appendix 4). The Deputy Vice Chancellor was appointed to nominate the Committee. On the 28 March the Deputy Vice Chancellor decided that the Committee should have the composition as follows:

Associate Prof Janerik Lundquist, former Chair of Board of Education, Linköping University, Chair of the Swedish Bologna Expert Group

Prof Jan-Olov Höög, Dean of Higher Education, Karolinska Institute

Prof Trine Hvoslef-Eide, former Deputy Vice Chancellor of Education, Norwegian University of Life Sciences

Prof Pim Brascamp, former Dean of Education, Wageningen University

Prof Marketta Sipi, Dean at Faculty of Agricultural Science and Forestry, University of Helsinki

Janerik Lundquist has been the Chair of the Committee. Kristina Julin, Division of Strategy and Planning at SLU, has assisted as Secretary to the group.

The Committee has had four meetings between 28 May and 5 October 2012, all of them at Ultuna Campus, and one video-conference the 16 October 2012. The Committee has met with Vice Chancellor Lisa Sennerby Forsse, Deputy Vice Chancellor Lena Andersson-Eklund, the Assistant Deans of Education at SLU's four faculties, staff from Skara and Skinnskatteberg, Ulf Heyman (former Registrar), Daniel Gillberg, Head of Division and Planning, and, of course, student representatives from SLUSS, the Joint Committee of Student unions at SLU.

Several writings from students, alumni, companies and SLU faculties addressed either to the SLU Board or directly to the Committee, have been sent to SLU as the work has proceeded. These writings have all been presented to the Committee.

Division of responsibility within SLU

The Swedish University of Agricultural Sciences (SLU) is an internationally leading university within its sector and is highly ranked in most ranking systems. As most highly ranked universities it is research focused and as stated at their homepage "SLU is heavy on research – about two thirds of the annual turnover goes to research, and close to two thirds of the staff are researchers. SLU participates in a number of national and international academic networks within the Life Science field". But in addition SLU "offers a number of educational programmes, including veterinary medicine, forestry, and landscape architecture".

The Board of SLU has stated in earlier annual reports as well as in strategy documents that the proportion of education should increase within the university. Partly, as a result of the Board's statement and pronounced direction of Development, a large amount of Master's programmes has been introduced. In the strategy document for 2013-2016 there is a clear ambition to further expand the education and especially at the advanced level.

Recently, an allocation cut down from the government hit SLU, which resulted in a deficit of around 30 million Swedish crowns. This deficit is within the education sector. The ambition to expand the education is in an absolute contrast to the allocation cut down from the government. This is in contrast with the pronounced ambition to expand the education in SLU's Strategy and the cut down of funding to education has to be solved.

The most striking observation of the Committee is that within SLU the costs of teaching are not monitored. The diagnosis of the Committee is that an important result of this is that the responsibilities for the content of programmes and their costs are not connected. The Committee strongly recommends that a Central Education Board (CEB) is established at SLU with an overall economic responsibility for the entire education sector in order to have the authority over education and the responsibility in the same formal body. This Board is proposed to be chaired by the Deputy Vice Chancellor.

An absolute requirement for an effective teaching organization is a clear delegation of responsibilities from the top management level (SLU Board) via the Programme Boards to the performing level (departments). These responsibilities should include economic as well as quality and general pedagogic issues. At the same time as a clear and transparent delegation system is introduced, it has to be communicated to all involved persons including the students. A general impression today is that several course directors, directors of studies and programme directors don't know who has the economic responsibility for the course, the programme or the entire teaching environment. When a budget cut down hits a system where the economic responsibilities are not obvious for all involved the result is hard to survey.

Conclusion: *The Committee proposes SLU to establish a clear delegation of responsibilities from the top management level via the Central Educational Board (chaired by the Deputy Vice Chancellor) to the Programme Boards, which is needed to be set up to take overall responsibility for a cohesive set of study programmes. This delegation should be independent of the Faculty boards and include responsibility for the education budget as well as for the overall education offering at SLU. By having related study programmes under the same Programme Board a healthy interaction between programmes and division of courses may take place to have more efficient teaching.*

Efficiency of resources

The Committee has looked through the vast array of courses offered and has questioned SLU staff whether groups of students can be taught in the same, or parts of

the same, courses. This seems to be a very challenging idea. The reaction from the SLU staff has been: “No – these students cannot be taught together, their educations are totally different and that is impossible”. Still, other universities around the world manage to teach for example biology subjects to veterinary students, medical students and other biology related professional study programmes the same course modules during the foundation years, even the same modules as for Bachelor’s in Biology. Although these education systems are a little different from the Swedish, it should be possible to think outside the box and take inspiration and ideas from those who manage to educate their students that efficiently.

SLU does not need to go all the way down this road, but there are ample opportunities to gather student groups into larger teaching groups, both in courses taught on the same campus, and even across campuses when using modern video links and distant learning techniques. It seems that SLU has evolved the courses on teachers’ wish and need to teach their specialities, rather than SLU’s needs to have efficient teaching. This way, the courses are locked into one study programme. Economically, the courses are the drivers of the highest costs in any study programme.

Conclusions: *The Committee recommends SLU to look at the course portfolio and reduce the number of courses offered across the whole university by making sure that different student groups are taught in the same course when possible.*

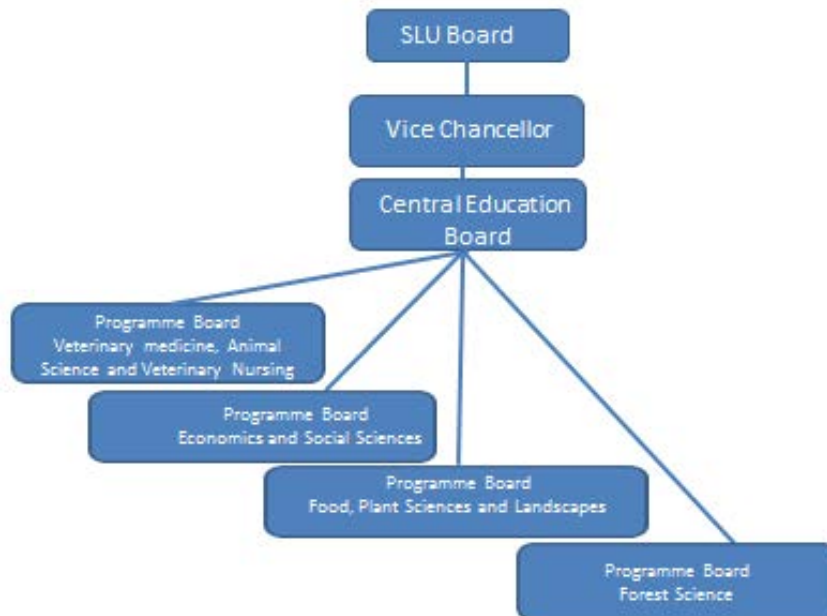
The Committee also recommends SLU to reduce the number of elective courses by closing down or perhaps start by offering them every other year instead of every year.

The Committee stresses the importance to continue to give research based teaching, but to evaluate the teaching methods in order to reduce costs. There might be other benefits in addition; for example increasing the use of distant learning across campuses will also enhance the SLU spirit and demonstrate being ONE university.

Programme Boards at SLU

As discussed above the Committee proposes a new management structure for SLU when it comes to the responsibility for courses and programmes as well for the funding of these activities. The Committee spent an important part of its time to analyse the situation and understand the management and funding of education. An observation is that in most instances a programme is run under the auspices of a Faculty and not as part of SLU as a whole. Faculties decide and differ on many issues; the way student support is organized to find their way in the offering of courses, to scheduling and funding of education. A consequence of the importance of faculties in this respect is that programmes are very much course-driven. This is in contrast to a situation where programmes ought to be driven by the learning outcomes and competences a graduate is expected to have reached, and then creating the courses necessary to meet these learning outcomes. Perhaps exaggerating a bit; it seems that the courses offered constitute a programme, while the needs of the

programme do not always demand these courses. This situation likely is one of the reasons why education financially is not in control. In many cases there is no real course budget available, which may lead to overspending. SLU has no procedure in place to ensure a total budgeting of the programmes and all the courses in a programme with budget frames which SLU can afford.



It is not clear what the available budget of a programme is and what amount of what type of courses fits within the budget. One of the symptoms of this is that the present University Education Committee (GUR) is in the position to discuss study programmes and advise on them, but has no budget responsibility and hence no responsibility for overspending. The departments/faculties take the approval of study programmes as a go ahead and spend the money they find necessary to give the programme. Some departments and faculties keep within their budgets and have a grip on the situation, while others clearly do not. Very early on in our deliberations we diagnosed that this situation is undesirable and that running study programmes (defining learning outcomes and optimally allocate budgets to reach these) is an activity in its own right, which deserves a fully recognized position, supported by well-defined responsibilities apart from the line structure of e.g. Deans and Heads of departments. In essence, the Committee takes as a model where study programmes purchase expertise from departments to have the desired programmes carried out. There need to be a clear coherence between the power to decide on a programme and the power to hand out the money to run the programme, according to a given total budget for that particular programme.

SLU receives its money for education from the Ministry of Rural Affairs without any specifications on how many degrees of different kinds to be delivered during a certain time span. This distinguishes SLU from other universities and university colleges in Sweden. Hence, SLU is free to design its own combination of BSc-, professional and MSc-programmes. This opens many interesting possibilities for SLU to design educational programmes in line with its strong research fields, taking the needs of society and the labour market into account. However, the

society needs change over time and at the same time the research may open new opportunities for study programmes. To be able to respond to the changing societal needs, the management of the education programmes must have power to accommodate the course modules as well as the course content in an appropriate way.

If the management of the programmes lies solely in the hands of Faculty Deans and Heads of departments there is a tendency that the programmes will get “cemented” over time since each body wants, for natural reasons, to preserve what once has been given and protect its own subject area and its position in a certain programme. We propose to set up a matrix organisation where the management of programmes interacts with faculties and departments, but where each body plays a very strict and defined role separated from each other. This will create an organisation where each programme will be planned and run with a holistic approach starting from the desired learning outcomes and competences defined for each specific programme, and where a budget is secured to come with every programme.

The Committee proposes a new structure for the education at SLU based on Programme Boards with full responsibility for the design and content of the education programmes and with financial resources to purchase the education/expertise from different departments. This will lead to a strict financial responsibility for the different bodies. The Programme Board has to be responsible for the budget allocated to this Board by the new, proposed Central Education Board (CEB). The department, on the other hand, is responsible to deliver into the programme the courses defined by and ordered from the Programme Board. The department has to adhere to the restricted budget that the Board has assigned for this activity. By applying this structure the course modules of a programme will be content driven, based on the expected learning outcomes and competences for the specific programme and the departments will be paid according to a budget. It is important that one body has the total responsibility for a programme and that this body has the money and the power to design the programme’s modules and their learning outcomes as well as the learning environment to achieve these goals. This is one entrance to the matrix.

The other entrance to the matrix is formed by the faculties and departments at SLU. They will receive an annual budget from the Programme Boards and within this frame deliver the orders from the Programme Boards. They are responsible for the personnel, equipment, facilities etc. needed for the courses and for keeping the costs within the assigned budget. A particular department will in many cases receive money from more than one Programme Board.

Based on the present programmes offered at SLU, the Committee proposes four Programme Boards. It is eligible under each Programme Board to gather programmes with a similar scientific base and anchored in the core business of SLU. To maintain the fundamental ideas behind the Programme Boards, for example efficiency and mutual use of courses, it is essential that these *are not organisationally connected to the Faculties*. With this point of departure the Committee proposes to set up the following Programme Boards:

- **Programme Board for Veterinary Medicine, Animal Science and Veterinary Nursing**
- **Programme Board for Economics and Social Sciences**
- **Programme Board for Food, Plant Sciences and Landscapes**
- **Programme Board for Forest Sciences**

All programmes decided to be offered at SLU during the academic year 2013/14 have been assigned to a suitable Programme Board as presented in Appendix 2.

A very important issue is that each programme only belongs to one Programme Board, even though Boards can choose to share courses between programmes. Of course the allocation of programmes to Programme Boards is tentative and it may well be that detailed discussion within SLU leads to another allocation. In terms of domain the Programme Boards to a high degree coincide with current faculty domains. This has clear disadvantages because it may freeze current programme design, while fresh rethinking of the programmes is required. For the proposed clustering of programmes, however, there are strong arguments in the sense of content-wise relationship and this should weigh stronger rather than the argument of change per se. Of course, some programmes currently part of a particular Faculty move to a Programme Board they logically belong to.

In Appendix 1 the characteristics of the Programme Boards are described.

To run the daily work in the Programme Board a programme director needs to be appointed. This person is an advisor to the Programme Board and will handle all daily issues related to the programmes and also submit the reports to the board. This can be a full- or part-time job depending on the size of the board.

A key factor to the success of this structure is a transparent allocation of budgets to study programmes and, in the next step, to courses. The Committee proposes the following model to compute the budget for each course module:

Budget for the course module = (Number of ECTS credits for the module) x (Number of student groups taking the module) x (A module coefficient) x (A price label).

In this model, the credits per course are decided by the Programme Board, which also sets the module coefficient (which is a factor according to allowed expensiveness of teaching methods). The number of student groups follows from the number of students registered for the course, and the price label is a figure in SEK that is the same for all Programme Boards at SLU. In Appendix 1 we further detail the model.

It is the responsibility of the Programme Board to take care that the total costs of courses derived this way is within the programme budget. Naturally, also the programme budgets are a function of student numbers and allowed expensiveness of teaching methods. The Programme Board requests departments to offer courses

with predefined learning outcomes within the budget set, and will on a regular basis evaluate that learning outcomes are indeed met.

After having done the computing and the total cost for all programmes belonging to a certain board have been calculated, it will probably lead to a higher cost than the budget available. The Programme Board has the responsibility to reduce costs for programmes and modules if the available budget so demands. This can be done in many ways and priorities have to be set as well. An easy way to start is to reduce the module coefficient for a certain course module. This means that the course organiser (the department) has to design the learning environment in a cheaper way. If the learning outcomes and competences will be seriously jeopardised a dialog with the course organiser must take place. Finally the Programme Board must decide if the risk with a reduced budget for a specific course module can be taken in the light of the expected learning outcomes and competences of the whole programme.

Another way to reduce costs could be to decide to cancel elective modules with a participation student number less than say 12 or 15 or another suitable figure. Such minimal figures might differ between programmes and between Programme Boards. There might also be a chance for a department or a research group to offer an elective module to a programme totally funded by the offering unit.

A third way to reduce the costs of programmes could be to design the courses so that they can accommodate higher student numbers in lectures, tutorials, labs, etc. Therefore, it is important to have the similar programmes in the same programme boards to ensure that the most effective course structure is developed. It seems that there is an extensive amount of courses, which are specialised for their programmes and the situation has developed this way over the years. Based on experiences from other universities, student groups may be taught together if actions have to be taken to reduce costs of education without compromising learning outcomes. Perhaps there is even something to gain from teaching different groups of students together, as they may learn from each other's different perspectives on the same subjects. It is therefore important that Programme Boards, where useful, join forces to request courses, which serve a big variety of students.

Programme structure and location

Programme structure

According to its Strategic Plan, SLU is in a process to develop from a typically agricultural university to a university with a more general profile. The Committee on Organization and Structure which functioned parallel to our Committee on Education, also stressed this point and suggested to move in the direction of *e.g.* life sciences, related to food and the environment, changing its name accordingly. It is worthwhile to discuss the current offering of study programmes in this context. We consider SLU to offer four different categories of programmes. These are:

- 1) Bachelor's programmes with a professional profile (180 credits)
- 2) BSc-programmes with a science profile (180 credits)
- 3) Professional advanced programmes (270-330 credits)
- 4) MSc-programmes (generally 120 credits).

See Appendix 3 for an overview.

The first category of programmes originates from often shorter programmes with a professional profile, which developed in the light of the Bologna process and the new Higher Education Ordinance into 3-year professional programmes with science course modules. These programmes generally have an orientation towards a well-defined job market. As it stands, SLU considers these vocational-like programmes in areas like forest, agriculture and equine studies as crucial to its societal role. It should be realized, however, that the context of these programmes, in order to be successful, differs considerably from the context of a science oriented university. In particular the career paths and performance indicators for successful careers differ considerably between staff successfully combining excellent research and teaching in relation to staff responsible for vocational-like training. If SLU develops to get a more general profile with emphasis on science, it may well be that some of these programmes in the long run have to be re-oriented to a more scientific SLU-focus.

The second category of programmes (BSc-programmes) is specifically designed to issue Degrees of Bachelor of Science, with Biology and Environmental Science as an example. There is one exception to this: Ethology and Welfare (in Skara). This programme is on the crossroads of either refining a professional profile or developing into a science-based BSc. Taking into account the job market of its graduates we presently consider it as a BSc. The consequence will be described below.

The third category contains advanced professional programmes, which have been designed as an integrated BSc-MSc in the context of the Bologna process. With the exception of Veterinary Science (for which internationally the shift to BSc-MSc is only gradually progressing) these programmes were maintained because of their specific job-oriented role in Sweden.

As a consequence, the fourth category, the MSc-programmes, has partly been created as a by-product of this third category, and generally being taught in English. SLU did not choose the alternative to split into a 3-year BSc and a 2-year MSc (in English). The Committee discussed the question whether this choice of SLU will stand in the long run. Both its ambition to emphasise science and its ambition to stimulate the enrolment of international students, together with cost efficiency, may well lead to reconsider the choice in the future. The Committee after discussion of these issues decided to take as a starting point that SLU keeps and cherishes its category 1) and 3) programmes (Bachelor with a professional profile and professionally oriented long programmes) with BSc- and MSc-programmes as the by-products. This is provided that the offering of these

programmes does not cost SLU more than SLU can afford (i.e. that the courses in these programmes are the same courses as given already in the professional programmes). It is advised that SLU considers the matter and even if in agreements with this starting point, still reconsiders its position on these issues in five years' time.

This choice for the professional programmes implies that no courses will be taught specifically to the benefit of MSc-programmes. At the same time the Committee advises that courses for the later part of the professional programmes are taught in English. This approach joins cost-effectiveness with flexibility for future solutions. As long as the long professional programmes exist, the BSc-programmes tend to be second choice. Other BSc-programmes like "Biology and Environmental Science" and "Ethology and Animal Welfare" respectively may well serve a purpose. For programmes like these, careful analysis is required, however, whether graduates have realistic job opportunities or realistically prerequisites for MSc-programmes of choice.

There are many programmes in SLU which have not been explicitly mentioned in this report, because the Committee has no reason to suggest other arrangements than the present ones. However, general comments on programme structure and SLU's mission in the Swedish education system, also applies to these.

The Committee did not analyse the degree to which departments get their income from research or education. For a university ideally there is a balance between these two activities. We recommend, however, to look into this matter and seek ways to develop study programmes well fitting in the profile of SLU in cases where little education is provided, while a considerable high quality research is present. In that context the Committee can think of programmes in the area of the bio-based economy, which for example may ask for expanding and profiling of the current offering of biotechnology. It may well be that collaboration with other universities is a promising way to go. However, in order to strengthen the SLU spirit, the excellence in biotechnology within SLU might be explored through distance learning with a support from the local campus.

An additional direction to go may be to develop education in the direction of Food and Nutrition (instead of solely Food Technology), including health aspects of nutrition. This likely fits well within the future profile of SLU, but may need additional investment at SLU, as well as expertise from strategic collaboration with other universities. Whenever the choice of using internal or external expertise is made, the choice requires careful consideration on the long term consequences.

***Conclusions:** The Committee proposes SLU in the short term to focus on Bachelor's programmes with a professional profile and professionally oriented long programmes, while the general BSc- and MSc-programmes are by-products to these programmes. Further, to develop a programme in the direction of Food and Nutrition, instead of solely Food Technology, including health aspects of nutrition. In the long run a science oriented BSc-MSc structure may suit SLU better and this issue should be subject of evaluation in each strategy period.*

Learning outcomes and progression

In the development of university education the programmes are increasingly driven by learning outcomes and not by the expertise available at the university. The Committee concludes that this approach should be further developed at SLU. In doing so, it is recommendable to develop programmes from scratch, defining the skills and competences graduates from SLU need in order to fulfil their role in the Swedish – and increasingly in the international - society. At the same time it should become clear in what phase of the programmes learning outcomes should be reached and at what level. As a next step these programme learning outcomes are to be assigned to courses and course related learning outcomes should be defined, along with an assessment policy, *i.e.* in what way it is assessed at what level individual students reach these learning outcomes. When this approach is carried out systematically the resulting programme will have a logical set up, where more advanced learning outcomes follow more introductory ones. It should be realised that building a structure like this never finishes and therefore needs not to be perfect from the beginning. On the other hand, the Committee strongly advises to adopt this approach when analysing current programmes and when developing changes, along with fitting programmes within budgets available for them.

Conclusions: The Committee proposes SLU to develop and design its educational programmes with a focus on the students learning outcomes and competences.

Internal strategic collaboration

Another matter which has caught the interest of the Committee is that the SLU campuses seek cooperation with the university “next door”, e.g. for biotechnology in Alnarp (with Lund), rather than seeking partners across SLU, when SLU has distinguished biotechnology expertise both at Ultuna and Umeå. The SLU biotechnologists are much more likely to offer an angle on biotechnology that SLU students would appreciate (*i.e.* crop related). The Committee sees this as a sign that SLU campuses might dissolve over time and be associated with the “next door” university rather than with SLU as a whole. In time, these bonds may result in assimilation into the neighbouring universities. If SLU continues to dilute their programmes further into other fields and more basic studies, this would increase this risk of dissolving SLU.

Conclusions: The Committee proposes that SLU keeps and enhances its profile as the leading university with close ties to the management of natural resources and land use, rather than diluting its programmes further into other fields or into more basic studies.

Long Professional Agronomist Programmes

Among the long professional programmes (category 3 above), there are five programmes leading to the title Agronomist. These constitute 270 credits and as it seems employers and students feel this title to be of importance, making graduates recognised in the professional field in Sweden. The programmes deliver agricultural scientists with a well-developed feel for and knowledge of the domain where they may get a job. First of all, we advise to change these programmes into

300 credits and to negotiate with the Ministry to fund this prolongation. There are two reasons for this:

1. Students generally take (far) more credits than the 270 required for the degree. This obviously is not cost-effective from the university point-of-view.
2. In the long run, a better setup may be that the professional programmes are embedded in BSc- and MSc-programmes. This setup is the reverse of the current situation and in that setup the professional degrees may be tracks in the BSc- and MSc-programmes. When the length of the BSc-MSc and the professional tracks are the same this step may be more easily made.

The Committee has discussed the option to come to one single programme with the professional degree in Agriculture (Agronomist) to replace the current five programmes. This programme would have specialisations into the current five directions. It may require to homogenise the entrance requirements of the programme to include natural sciences as a requirement for all applicants, instead of the two entries today. It would promote that also the social sciences oriented graduates have a sound natural sciences basis, which seems realistic when granting the title of Agronomist. A logical consequence of such a setup is that the specializations start with common ground in the first or two first years, gradually specializing when progressing. Apart from cost-efficiency, this setup has the advantage that students can find out what they really like to study, which may lead to a more even distribution of students across the specializations as compared to the current situation for the five programmes. Perhaps it is desirable that there are numbers of seats defined for each of the specializations with the consequence that students choosing a specific specialisation may find that it is not possible to take the specialization they wish. If a flexible issue of seats from year to year cannot be resolved the Committee advises to maintain the different programmes, but to choose for a common start, similar to the one which would be in place when running one comprehensive programme.

Although the Committee would welcome this setup of the Agronomist programmes it will not stress it because the current five programmes are proposed to be part of different Programme Boards. The arguments for the division into Programme Boards seem stronger than the arguments for one Agronomist programme. Nevertheless, the Programme Boards are advised to consider a set up remaining different programmes (such that a programme belongs to one Board) but chose for a common framework as painted above.

***Conclusions:** The Committee proposes a common framework for the five programmes in Agronomy with many joint courses in the first or two first years of the programmes. In line with this the Committee suggests one common entry requirement for all five programmes.*

Animal Welfare and Veterinary Nursing

The two programmes at Skara are Ethology & Animal Welfare and Veterinary Nursing. They are both well-functioning where they are, and have a great wish to

continue being there. However, the two programmes are a little isolated from the rest of the sciences in SLU and would benefit from being located on a larger campus. Also, in light of SLU's economic reality, some cuts must be carried out and moving these two programmes seems like a valid choice to save money, especially in the long run. There was some discussion in the Committee whether Ultuna or Alnarp was the best choice, and we easily fell down on Ultuna. Although the reason to discuss the issue primarily has a financial trigger, there are strong pedagogic and scientific arguments underpinning this proposal.

The Veterinary Nursing programme

The programme is a very popular with a high entry grades. The Committee understands that SLU would like to increase the number of animal nurses, maybe even double the number because there is an increased need in the Swedish society because of new regulations on the qualifications to handle anaesthetics to animals. There is capacity and room for both the teachers and the students at Ultuna and in the new animal hospital is big enough to accommodate also this programme. There are obvious advantages to teach veterinarians and animal nurses on the same campus, as they will be working together in their future careers, as a parallel to the development within the educations in human care. And, last but not least, the science based teaching is likely to prosper from being at Ultuna.

The BSc in Ethology and Animal welfare

The animal husbandry and veterinary programmes are in Ultuna, so more joint courses can be given. There is also animal ethology research in Ultuna, and the science based teaching is likely to prosper from being within a larger science community at Ultuna. The capacity and room are enough for the ethology teachers and students at Ultuna. The good learning environment at Skara campus can also be achieved and further developed at Ultuna campus, even though new sites visits will have to be explored in a new location.

***Conclusions:** The Committee proposes SLU to move the two programmes Veterinary Nursing and Ethology and Animal Welfare from campus Skara to campus Ultuna.*

Landscape architecture

The Committee very soon discovered that the 5-year programme in Landscape architecture was given in both Alnarp (more design oriented) and Ultuna (more natural science oriented), with very little coordination and common courses. The Committee was told that they have started sharing experiences through a common "council" (DUAL). The Committee thinks there must be obvious scientific, pedagogic and economic reasons to coordinate these two programmes to a much larger extent by merging the two programmes to one. When questioned about where a merged programme could be located, the Committee was told that Alnarp could, with some adjustments, accommodate for all the present students in Landscape architecture. Since Alnarp also educates horticultural students, they have the competences on campus to teach the natural science subjects (e.g. soil and fertilisation) for all students within the programme.

Keeping two profiles of Landscape architecture is probably interesting, as the job market will see a difference between the two, if made more clear to them. The complicating factor when merging these two programmes is the different prerequisites, where the Alnarp programme has social sciences, the Ultuna one has natural sciences from high school. The Committee urges SLU to take the debate on whether having different prerequisites is strictly necessary, even if SLU chooses to offer two profiles (both in Alnarp). When questioned whether the job market recognises the differences between the two programmes in Landscape architecture, the answer is “probably not”. It does not seem to be in the best interests of neither the students nor SLU that this continues without a clearer reasoning behind and clearer profiling of the two. The Committee will recommend that SLU thinks through the advantages of a merge, and if this is not chosen; at least make it into one programme which takes advantage of each other’s courses through distant learning tools, where applicable.

Merging the two Landscape architecture programmes in one location could have the following advantages:

- Common courses will make the education less expensive in the large number of courses where this is possible
- Common campus location will create a larger pedagogic environment to the advantage for both teachers and students

***Conclusions:** SLU is recommended to merge the two Landscape architecture programmes at one location in Alnarp, keeping and developing the two profiles, to make the education more cost-effective and clear to the students and employers at the same time.*

Forest Science

The Faculty of Forest Sciences with 10 departments is responsible for the forestry education at SLU. The forestry education is located in four different campuses, Umeå, Uppsala, Alnarp and Skinnskatteberg.

The main location is Umeå giving a five year professional Master’s Programme in Forest Science (Jägmästare, 300 ECTS) and one International MSc-programme in Management of Fish and Wildlife Populations (120 ECTS). Within the professional programme the students can do their Master’s thesis in business administration, in forest management either in Alnarp or in Umeå, in soil science or in biology. It’s also possible to take the second cycle in one of the two MSc-programmes in Uppsala or in the International Master’s Programme in Alnarp or in Umeå. This seems to work quite well. After Bachelor’s Degree some students move to Uppsala or Alnarp . The degree the students aim at is a Master of Science in Forestry (300 ECTS), but it’s also possible to obtain other degrees – a degree specialising in Forest Science or Master’s Degree (one year or two years) with a major in Forest Science. But the number and length of different Master’s Degrees, the profile of each degree and the differences between different degrees are

somewhat unclear. The degrees should be more clearly defined and the necessity and purpose of them should be determined and presented.

The School for Forest Management in Skinnskatteberg offers a three year professional Bachelor's Programme in Forest Management (Skogsmästare, 180 ECTS). After graduation the students can continue the studies at SLU in the Master's Programme (one or two years) in Forest Management or in Master's Programme (one or two years) in Forest Science. The education in Skinnskatteberg is related to the needs of the society and it is performed in a close co-operation with the surrounding forest industry. The main research areas are forest landscape and society and bioenergy. There are also some Doctoral students. In order to maintain a high quality education, based on research and experience it is necessary for Skinnskatteberg to keep a close relation to the other campuses with forest education and research.

The emphasis on research as a base for education should be considered when discussing the need of different campuses. In Umeå and in Skinnskatteberg SLU has only forest education. To diversify the offerings in research and education and to be able to react to the different needs of society, these two campuses should cooperate more closely with the other parts of SLU or with the University of Umeå.

Skinnskatteberg is a very unique institute and closely connected to the surrounding society and the forest industry. Its education is very important for the forest industry and attractive to the students. Also the employment situation of the graduates is very good. The education is functioning well and is cost-effective. It's no doubt that the programme is needed and that Skinnskatteberg is the best place for that education. However, in the future, SLU as a strong research university should consider in which direction different campuses should be developed. As a part of SLU it is apparent that Skinnskatteberg should be more research oriented.

It will be too expensive to run just one International Master's Programme in Alnarp. It is recommended that the forestry education at Bachelor's level is concentrated to Umeå and Skinnskatteberg and at Master's level to Umeå and Uppsala, where Uppsala is recommended to concentrate on forest economy. In planning of new programmes this should be taken into account and SLU is strongly recommended to thoroughly consider this before establishing new programmes.

The size of departments within Forest Science is varying a lot. The smallest departments in Umeå have just few employees, whereas the largest has about 100 employees. The possibilities to connect the smallest departments, the Department of Forest Economics and The Unit of Biomass technology and Chemistry with others in Umeå should be explored. A more even department structure would be easier to handle. Usually all the boundaries make the co-operation more difficult. To enhance the co-operation both in research and education there could be just one department at every campus.

The challenges for forest education to sort out are the different campuses, the number and size of departments related to forest science, the number, content and profile of degrees and the requirement on research based education in every programme.

Conclusions: SLU should define the different degrees in Forest Science more clearly. The Forest Management programme 180 ETC should be kept in Skinnskatteberg. The cooperation between different campuses has to be developed to avoid overlapping courses and to strengthen the research profiles in the programmes.

MSc-programmes in Engineering

Today SLU runs two MSc-programmes in engineering together with Uppsala University. One programme is Energy Systems Engineering, 300 ECTS credits, and the other is Environmental and Water Engineering, also 300 ECTS credits. To collaborate with another university in the vicinity to run a special programme is in many cases an interesting and rewarding affair for both parties. By integrating the knowledge and research from two ends it is possible to create a programme that would be impossible for one of the partners to run alone. For the involved teachers and researchers such collaboration can broaden their horizon and inspire to new thinking. During the interviews with staff at SLU the Committee understands that similar collaboration takes place or is planned at some other of SLU's campuses. However, there are many solutions on how this collaboration can be executed and presented to the students and the employers. We can here differ between internal and external collaboration.

External collaboration means that it is stated in the student's degree certificate that two or more institutions are responsible for the degree and both guarantee the student's expected learning outcomes and competences. In practice this is the case when two or more institutions set up a joint degree programme. A variant of the joint degree programme is a double degree programme set up between two or more institution and where each institution involved issues its own degree certificate.

Internal collaboration, on the other hand, means that two or more institutions run a programme with teachers from all partners lecturing in the programme. The essential point here is that only one of the partners "owns" the programme and is the official and formal face towards the students and the employers.

For the two MSc-programmes in engineering mentioned above we have a collaboration solution that might confuse both the students and the employers. Both programmes are designed on internal collaboration as described above. Uppsala University is the institution that owns the programme – the students are registered at Uppsala University, and Uppsala University issues the final degree certificate. SLU has no formal influence on the programme. SLU contribute with teachers, equipment and lecture halls for some course modules. SLU can be compared with a subcontractor.

A peculiar situation is at hand when the two programmes are presented at each university's homepage. On SLU's page with the general presentation of the programmes the collaboration with Uppsala University is not mentioned at all. And the same goes for the presentation of the programmes at Uppsala University. SLU is not mentioned at all. To the uninformed it would give the impression on the SLU's home page that SLU offers MSc-degrees in engineering on the one hand

and that Uppsala University runs these programmes without any connection to SLU when looking at Uppsala University's pages.

SLU might very well continue to be a subcontractor to Uppsala University for the two running MSc-programmes in engineering, but being a qualified and highly ranked institution SLU ought to develop its own professional programme in the energy and environmental sector. Energy and environmental issues are very high on the agenda today both among the students and among the employers. Here SLU can create a professional programme that contains knowledge and experience that is unique for SLU. One example could be the growing interest in bio-fuel and bio energy. When looking at the application figures to programmes in this domain in Sweden there is no doubt that there is space for a new, exiting professional MSc-programme (300 ECTS credits) based on SLU's excellence in this field. With the right profile this new programme would not compete with the two existing programmes at Uppsala University. Hereby SLU would offer its own programme with its own registration and its own degree certificate. The running collaboration with Uppsala University can continue as before, but now as a clear subcontractor to avoid all kind of confusion.

Conclusion: *Since SLU is not formally responsible for the two programmes in engineering, it would be more clear for students and society if these two programmes are not presented as a part of SLU's official programme offering. The present subcontracting to the Uppsala University MSc-programmes in engineering might continue, but in addition, SLU is recommended to develop a professional programme in the energy and environmental sector, based on knowledge and experience that are unique for SLU.*

Equine Study programmes

Several education programmes at SLU are extremely small (a small number of students) and some are in addition divided on several campuses. All programmes need a certain amount of economic funding for the management structure. For small programmes these costs can be proportionally very high. One of the smallest programmes within SLU this is the Equine study programme. This is a three-year programme, resulting in a Bachelor's degree, which was expanded from a two-year professional programme according to the new higher education ordinance 2007. The programme is today offered at three campuses; Flyinge, Strömsholm and Wången. The Committee strongly recommends SLU to concentrate the Equine study programme to one campus, preferably to Strömsholm due to the localisation and existing competence. This would make the programme easier to manage as well as providing the few students a better social student environment. In addition, it seems that the programme needs a general review to improve its scientific foundation in order to motivate its place among the SLU programme offering. The programme can also develop towards a real vocational programme and thereby, in the long run, be transferred to the Swedish National Agency for Higher Vocational Education.

Conclusion: *The Committee proposes that the Equine Study programme is concentrated to one Campus, Preferably to Strömsholm.*

International student exchange

Though there are very many angles to internationalisation we consider only two.

One is offering the opportunity for SLU-students to study abroad. Students should be stimulated to take this opportunity because the world is increasingly global and study abroad trains students to recognise diversity in learning methods, cultures and languages, and trains them to adapt to new environments. Two aspects require improvement in that respect. The first has to do with scheduling, the second with the recognition of courses taken abroad. With respect to scheduling the Committee advises to require exchange windows within each programme (in particular for programmes of 180 credits or more), which amounts to for example half a year. During this time period there is no course work that is obligatory within the programme. Shorter programmes (MSc in particular) often contain full time individual project work, which allows students to study abroad. If this is not possible for some good reason, at least SLU needs to improve on recognising equivalent courses from abroad.

At SLU there are apparently in some cases problems with recognition of credits earned abroad. From interviews the Committee had with students and staff it was evident that these credits often are not recognised as part of the student's curriculum at SLU because they do not perfectly mirror (obligatory) courses taught at SLU. Successful credit transfer requires academic recognition of credits. Recognition of credits is the process through which an institution certifies that certain learning outcomes achieved and assessed in another institution satisfy certain requirements of one of the programmes they offer. Given the diversity of programmes and higher education institutions, it is unlikely that the credits and learning outcomes of a single educational module in different programmes will be identical. Therefore, a flexible approach to recognition of credits obtained in another context is recommended. "Fair recognition" rather than perfect equivalence is to be sought for. Such "fair recognition" should be based on the learning outcomes rather than on the formal procedure that have led to the completion of a qualification or its modules. The recognition process should be transparent. When looking at SLU a far more liberal approach is desirable here, with decision making on the level of the individual student's programme and where learning outcomes should be leading. The recognition of foreign qualifications should be granted unless a substantial difference can be demonstrated between the qualification for which recognition is requested and the relevant qualification at SLU. It is also important that the students get these recognition prior to their studying abroad, to avoid problems upon return.

A second issue is the attractiveness of SLU for foreign students, not only for exchange students - where Uppsala generally is attractive as long as teaching is offered in English - but also for full programme students. This requires a policy with the offering of MSc-programmes in the core of SLU's competence and a policy which balances the level of registration fee, a focus on priority countries combined with grants from a variety of sources, and international student recruitment. Another way is to structurally offer programmes jointly with other universities. Examples of such collaborations of the duration of 1 or 2 years are in the context of

Erasmus Mundus, but strategic alliances with foreign universities also may lead to joint programmes when each partner doesn't have the expertise to fully teach it individually. It should be noted, however, that this process might be laborious at the same time as the competition to get funding from Erasmus Mundus is very hard. It seems recommendable not to put emphasis on this possibility in the first row, but to focus on an offering of programmes which challenge and stimulate foreign students to come to SLU.

Conclusion: *Where possible, SLU ought to create a "student exchange window" of at least one semester within each programme. SLU must adopt a more flexible and tolerant view towards recognition of courses taken abroad. The courses on Master's level should be taught in English.*

APPENDIX 1 Programme Boards and Budget Model

Programme Boards

The Programme Boards can have different number of members representing different categories of interest. The Committee proposes that SLU sets up their Programme Boards with representatives from the faculties, the students and from the society. The participants representing the society will be recruited from companies, associations or organisations that have a special interest in and knowledge about learning outcomes required by the employers recruiting graduates from the programmes the board is responsible for. The students come from the programmes under the board's responsibility. The faculty representatives, finally, come from departments delivering course modules to the actual programmes. What is a suitable size of a Programme Board? With 9 seats each category would have a good representation. This would give the staff 4 seats, the students 3 seats and the external representatives 2 seats. A more balanced board would contain 4, 3 and 3 respectively. In all cases the chairperson would have the casting vote. Normally the chairperson is elected among the faculty representatives. An important issue is that no category on the board has a majority of the seats. The Committee hands over to SLU to decide about the size and the seat distribution on the Programme Boards.

Compared with the present organisation at SLU dealing with educational issues this proposal will reduce the number of people involved at the same time as those being involved in the new organisation will have a substantial power to make decisions coupled with financial power. With a Programme Board of 9 people, for example, SLU has to recruit 16 (4x4) staff members, 12 (4x3) students and 8 (4x2) external members.

In order to fulfil its qualified tasks the Programme Boards must have legitimacy in the organisation. For this reason the faculty representatives have to be elected by all staff at SLU. A nomination committee has to present a list of candidates for each Programme Board. The nominated candidates must show strong integrity and be able to put the future of the programmes in the first row and reduce their loyalty to their own faculty and own department. The students select their representatives among themselves. The external representatives are proposed by CEB for each Programme Board. The staff and the external representatives are appointed for 3 years while the students will probably change their representation each year.

As mentioned earlier the decision making power of the Programme Board is a direct function of its exclusive right to decide about the budget for each course module and for the learning environment. The Programme Board has the power to propose new programmes, to decide about the curriculum and running of established programmes, to design the programme in order to achieve a good progression and to select the course modules that will guarantee the expected learning outcomes of the students upon graduation. Progression means the knowledge and competences acquired at one level are transferred to the next level where they are made deeper. In short, the education and training go from easy to complex and from general to specialised. The latter ought to be evident in research-

based professional programmes and in MSc-programmes. In vocational programmes the picture can be somewhat different.

It is also important that the Programme Board in its orders to the departments regulate everything but hand over to the teachers in the course modules to decide themselves what type of education and training will lead to the achievement of the expected learning outcomes. This means that the Programme Board doesn't stipulate exact how many lectures, how many laboratory hours etc. a course module will contain. These settings must be in the hands of the course responsible teachers. They have to design the course module to reach the expected learning outcomes within the frame of the assigned budget from the Programme Board. This design should of course be negotiated with the Programme Board. The department is responsible for the outline of the module within the assigned budget.

Budget Model

Finally, and most important, the Committee presents a possible way to handle the budgeting and the budget control at the Programme Board level. As shown earlier each Programme Board will receive its annual budget from the Central Education Board. This budget is the total amount of money the Programme Board has available to order course modules and learning environment from the departments. For this distribution process and for the later follow up the allocation key must be as simple and transparent as possible. For internal legitimacy the transparency of the money distribution is essential. It contributes to a basic quality of the system, which means that similar teaching at different departments has the same price.

The Committee proposes a model to compute the budget for each course module:

Budget for the course module = (Number of ECTS credits for the module) x
(Number of students groups taking the module) x (A module coefficient) x (A price label)

-The number of ECTS credits for each course module is decided by the Programme Board. The number of credits is an indication of how much workload in hours a normal student is expected to use in order to pass the exam.

-The number of students groups has to be decided with support from the administrative systems at SLU. If not already in place, SLU has to set up a system where the students have to choose course modules before each semester starts. These figures are used to compute the budget for the next year. To guarantee a fair budget related to the real number of students having followed a course module SLU has to register how many students really registered on a course module ex post and then, if necessary, redistribute the money between the departments. This would normally only take place when there is a substantial deviation of student numbers in reality compared with the prognosis. The figure we have to put in here is 1 or 2 or 3 or ... depending on how many lecture groups the students having chosen the course module create. SLU has to decide if every 20th or 30th or some other number of students will create a group in this context.

-The module coefficient is the most difficult issue in the model to set and to get acceptance of. By this coefficient the Programme Board hands over the responsibility to design the module's realisation to the course organisers. The value of the coefficient should have a span sufficient to cover the full range of teaching methods (and costs connected to them). A normal module with some tutorials or labs might have the coefficient equal to 1.0. If the module is more lectured based the coefficient might go down to 0.8. For modules that have more of labs and/or field training the coefficient can increase and for a module with the highest concentration on expensive lab equipment or much specialised and expensive field training in small groups the coefficient might reach for example 3.0.

-The price label is a figure in SEK. SLU has to settle this figure in relation to the range of module coefficients chosen. It is important that this figure is the same for all programmes and course modules. The Programme Board will influence a specific course module budget by deciding the relative importance of the module in the programme by assigning a certain number of ECTS credits to the module on one hand and by setting the value of the module coefficient on the other.

After having done the computing and the total cost for all programmes belonging to a certain board have been calculated, it will probably lead to a higher cost than the budget available. Now the Programme Board has to take its responsibility and reduce costs for programmes and modules. This can be done in many ways and priorities have to be set as well. An easy way to start is to reduce the coefficient for a certain module. This means that the course organiser (the department) has to design the learning environment in a cheaper way. If the learning outcomes and competences will be seriously jeopardised a dialog with the course organiser must take place. Finally the Programme Board must decide if the risk can be taken in the light of the expected learning outcomes and competences of the whole programme. Another way to reduce costs could be to decide to cancel elective modules with a participation student number less than say 15 or 12 or another suitable figure. Such minimal figures might differ between programmes and between Programme Boards. There might also be a chance for a department or a research group to offer an elective module to a programme totally funded by the offering unit.

A third way to reduce the costs of programmes could be to design the courses so that the courses can teach higher student numbers in lectures. Therefore, it is important to have the similar programmes in the same programme boards to ensure that the most effective course structure is developed. It seems that there is an extensive amount of courses, which are specialised for their programmes and has developed this way over the years. Based on experiences other universities, student groups may be thought together if some compromises are made to reduce costs of education without compromising learning outcomes. Perhaps there is even something to gain from teaching different groups of students together, as they may learn from each other's different perspectives on the same subjects. It is therefore important that Programme Boards where useful join forces to request courses which serve a big variety of students.

APPENDIX 2 Programme Boards and Programmes (based on Vice Chancellors decision on programme offering 2013/2014)

Programme Board for Veterinary Medicine, Animal Science and Animal Nursing

Veterinary Nursing - Bachelor's Programme, 180 credits
Ethology and Animal Welfare - Bachelor's Programme, 180 credits
Veterinary Medicine Programme, 330 credits
Bachelor of Science in Equine Science, 180 credits
Agriculture Programme – Animal Science, 270 Credits
Animal Science, Master's Programme 120 credits
Infection Biology, Master's Programme 120 credits
Animal Breeding and Genetics, Master's programme 120 credits

Programme Board for Economics and Social Sciences

Agriculture Programme – Economics and Management, 270 credits
Agriculture Programme – Rural Development, 270 credits
Agricultural Economics and Management, Master's Programme 120 credits
Environmental Communication and Management, Master's Programme 120 credits
Environmental Economics and Management, Master's Programme 120 credits
Sustainable Development, Master's Programme 120 credits
Rural Development and Natural Resource Management, Master's Programme 120 credits

Programme Board for Food, Plant Sciences and Landscapes

Agriculture Programme – Soil and Plant Sciences, 270 credits
Horticultural Science Programme, 300 credits
Landscape Architecture Programme, Alnarp 300 credits
Landscape Architect Programme, Ultuna, 300 Credits
Agriculture Programme – Food Science, 270 credits
Landscape Engineer Programme, 180 credits
Agricultural and Rural Management Programme, 180 credits
Horticultural Management: Garden Design - Bachelor's Programme 180 credits
Horticultural Management: Gardening and Horticultural Production, Bachelor's Programme 180 credits
Biology and Environmental Science, Bachelor's Programme 180 credits
Biotechnology, Bachelor's Programme 180 credits
Landscape Architecture, Master's programme 120 credits
Agro ecology, Master's programme 120 credits
Nordic Master in Landscape Planning, Master's programme 120 credits
EnvEuro - European Master in Environmental Science, Master's Programme 120 credits
Molecular Breeding and Plant Biotechnology, Master's programme 120 credits
Food - Innovation and Market, Master's programme 120 credits
Food of Life, Master's programme 120 credits

Nordic Master in Aquatic Food Production, Master's programme 120 credits

Plant Biology, Master's Programme 120 credits

Sustainable Urban Management, Master's programme 120 credits

Nature, Health and Garden, Master's Programme 60 credits

Soil and Water Management, Master's Programme 120 credits

Programme Board for Forest Sciences

Forest Science Programme, 300 credits

Forest Management, Bachelor's Programme 180 credits

Forest Industry Economics, Master's programme 120 credits

Euroforester, Master's programme 120 credits

Management of Fish and Wildlife Population, Master's programme 120 credits

Sustainable Forest and Nature Management, Master's programme 120 credits

APPENDIX 3 PROGRAMME OVERVIEW

Related to the proposal from
the organisation Comitée

	Forest			Vet & AnS			Agrifd & Landsc			
	Ultuna			Alnarp			Umeå		Skbg	Ströh
	BSc	P	MSc	B	P	MSc	P	MSc	B	B
Veterinary Medicine		330								
Agriculture Programme – Animal Science	180	270	120							
Agriculture Economics & Management	180	270	120							
Agriculture Food (& Health)		270	120							
Agriculture Rural Development		270	120							
Agriculture Soil, Plants		270	120							
Aquatic & Environmental Engineering		300								
Environmental Comm & Management			120							
Environmental Economy & Man			120							
Energy Systems Engineering		300								
Forest Industry Economics			120							
Biology and Environmental Sci	180									
Biotechnology	180									
Plant Biology			120							
Infection Biology			120							
Sustainable Development			120							
Landscape Architecture		300								
Landscape Architecture					300	120				
Agroecology						120				
Landscape Engineer				180						
Agricultural and Rural Management				180						
Horticultural Management (design)				180						
Horticultural Managem (gardening & prod)				180						
Horticultural science					300					
Euroforester						120				
Sustainable Urban Management (with Malmö)						120				
Nature, Health and Garden						60				
Ethology and Animal Welfare	180									
Veterinary Nursing		180								
Forest Science Programme							300			
Management of Fish & Wildlife Pop								180		
Forest Management									180	
Equine Science										180

Five 270 credits Agronom programmes

BSc Ekonomi

MSc Food Innovation and Market

MSc Rural Development and Nat Res Man

MSc Soil and Water Management

With Uppsala University

With Uppsala University

With Uppsala University

With Uppsala University

B Landscape Construction & Management

B Agriculture and Rural Management

Hortonom



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Division of Strategy and Planning
Johan Toren

DECISION
13 Feb 2012

Distribution list

Terms of reference regarding SLU's range of first-cycle and second-cycle study programmes

Decision

The Vice-Chancellor has decided:

that instructions in the appendix to this decision shall apply to the investigation of SLU's first-cycle and second-cycle study programmes;

that Ulf Heyman is to be named responsible for carrying out Phase One of the investigation according to the instructions in the appendix to this decision, and to be a resource for the investigating group during Phase Two;

that the Deputy Vice-Chancellor be commissioned with selecting an investigating group for the investigation in accordance with the appendix to this decision;

that the Deputy Vice-Chancellor be commissioned with selecting a manager responsible for the second phase of the investigation;

that the deans be commissioned with submitting basic materials on SLU's current study programmes in accordance with the instructions in the appendix to this decision, and to keep external collaborating partners informed of this investigation and pending changes in the course offerings;

that the head of the University Animal Hospital, the Director of the University Administration, and the Librarian Director be commissioned to submit basic data in accordance with the instructions in the appendix to this decision and with the future needs of the investigation;

that the investigation may spend a maximum of 350 thousand Swedish crowns, which will be paid out of the Vice-Chancellor's strategic funds (cost centre 1000000, proj 89, ff 10000001).

Report on the matter

The Bologna Process brought about a screening of SLU's entire range of programmes. The two-year first-cycle education programmes were reformulated into three-year Bachelor's programmes. A number of new study programmes have been inaugurated, primarily Master's programmes within SLU's profile area.

In accordance with SLU's goals, the number of students in first-cycle and second-cycle programmes has increased from 3,500 full-time equivalents to 4,100 over a relatively short time. This is, however, still very few students, as seen from a national perspective. The students are spread over five campuses. Additionally, the Equine Science programme is conducted at an additional three locations.

Before the 2012/13 academic year, SLU decided (prior to cost-cutting measures) to offer the following number of first- and second-cycle education programmes of different types:

- 14 vocational programmes
- 6 Bachelor's degree programmes
- 5 Bachelor's programmes that lead to professional qualifications
- 2 Master's programmes (1 year)
- 23 Master's programmes (2 year)
- 5 Erasmus Mundus Master's programmes

Training in the same fields is often found in several locations as part of SLU's current range of programmes. For example:

- Forestry Science and Biology are offered in four locations
- Animal Science (equivalent) and Plant Biology offered in three locations
- Agricultural Science (equivalent), Rural Development, Landscape Architecture and Planning, and Environmental Science offered in two locations

The programmes are normally carried out in the form of joint classes between closely related programmes. Certain programmes are offered in cooperation between two or more departments within SLU and/or in collaboration with other institutions that are primarily within the local, Scandinavian, or European networks that SLU is part of. Presently, 40 % of the second-cycle education programmes are carried out in cooperation with other institutions.

On November 2, 2011, the Board decided (§ 88/11)

- to commission the Vice-Chancellor to investigate the study programmes offered with regard to localization and programme structure, and to submit proposals for measures to increase resource efficiency in education;
- to commission the Vice-Chancellor to formulate the directives so that a progress report can be submitted to the Board in April 2012; and

- that the work should be conducted so that *a)* the Board can make decisions on localization and the overall programme structure in December 2012, and *b)* in June 2013, the Board and the Vice-Chancellor, respectively, can make decisions on a new range of programmes beginning with the 2014/15 academic year.

Grounds for the decision

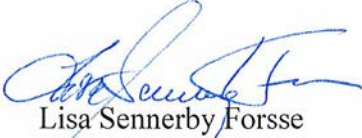
Education is marred by financial imbalance. In 2009 and 2010, a certain surplus was generated within the field of reporting, but previous deficits meant that education reported negative capital of approximately SEK 19 million at the end of 2010. Education is estimated to yield a negative result of approximately SEK 29 million for 2011. In addition, education at SLU is expected to post a further loss of SEK 20 million, according to the 2012 budget. This is chiefly because SLU, in a short time, has gone from a situation where all achievement within the programmes was compensated to the departments, and the university taken together failed to meet the government's quantitative goals, to a situation of overproduction and reduced appropriations for education.

Several short-term cost savings have already been decided on, and are aimed primarily at decreasing the number of courses offered to non programme students. The most long-term commitment in education, requiring the most resources, applies to carrying out study programmes. The investigation should therefore analyse and propose measures for a formulation of SLU's range of first-cycle and second-cycle study programmes that uses resources more efficiently.

The large number of education programmes in combination with a relatively low student volume means that many courses are run with just a few students, despite the joint classes and cooperation. The prevailing geographical spread of education means a challenge when it comes to using teaching resources, facilities, and other infrastructure effectively. Vocational education is fundamental to SLU, but also their structure and composition should be studied in order to create the most effective education possible while retaining quality.

The formation of this investigational task was discussed by the Council of Education at First- and Second-cycle (GUR) on November 23, 2011 and February 10, 2012. The staff organizations were notified on February 7, 2012.

The decision in this matter was made by Vice-Chancellor Lisa Sennerby Forsse after a presentation by education administrator Johan Torén, with Director of University Administration Martin Melkersson in attendance. Deputy Vice-Chancellor Lena Andersson-Eklund took part in the final preparations.



Lisa Sennerby Forsse



Johan Torén

Terms of reference regarding SLU's range of first-cycle and second-cycle study programmes

Appendix to Decision of the Vice-Chancellor 2012-02-13, Ref No. SLU ua Fe.2012.3.0-303.

Benchmarks

The SLU's strategy for 2013-2016 forms the benchmarks for the investigation. It emphasized SLU's continued roll as a coherent, national sectoral university. For first-cycle and second-cycle education, SLU stresses its intent to (version 2012-01-25):

- Create scope for long-term expansion of education by working for an increased education appropriation
- Increase the proportion of second-cycle education and focus the content on SLU's profile areas
- Develop the ways that education is linked with research and forms of the scientific approach throughout all education
- Develop the range of education programmes offered for greater quality and resource efficiency, among other things by more internal and external collaboration and a greater element of flexible learning
- Strengthen the internationalisation of education programmes, among other things by developing course content, promoting student and teacher exchange, increased international collaboration and recruitment to master's programmes

The task of the investigation

The primary goal of the investigation is to develop proposals for how SLU can best make use of available resources to provide education that contributes to knowledge development for a bio-based economy as well as within the environment, health, and quality of life in accordance with SLU's strategy for 2013-2016. The challenge is to make use of the resources SLU has been allocated to best provide high-quality education, which is both in demand and which coincides with our strategy.

First- and second-cycle education must be of high quality and attractive to both students and employers while education in 2015 is to be carried out with greater effectiveness of resources than 2010, within the assigned frameworks. The programme structure must be planned from the perspective of the university, not starting from the individual faculties.

Localisation of the study programmes must be studied starting from the effectiveness of the resources, as well as its contents and quality. In this regard, priority must be given to education located in small environments.

SLU must continue to offer study programmes that lead to professional qualifications, but the scope, structure, contents, localisation and degrees of the

programmes must be screened. In this regard, priority must be given to education that leads to the same exam, but which right from the beginning is divided into various programs or specialisations which apply, for example, to education in agriculture science, landscape architecture, equine science, and horticultural engineering. Other professional qualifications are provided with a more coherent order of study, but offer various profiling opportunities to varying extents at the end of education.

Proposed changes must also contribute to developing the education's basis of research. SLU's research is comprehensive, which means the university has excellent opportunities to manage education with a strong basis for research. But a basis for research in education means not only up-to-date subject materials and teachers qualified for research; creating a learning environment that puts the student in the centre and which stimulates curiosity and creativity, provides training in scientific arguments, analysis, and experimenting as well as training to problematize and making critical assessments on one's own is equally important.

Changes proposed must also contribute to strengthening the internationalisation, which covers various components. The degrees must be internationally practicable, and the content must encompass international and global aspects of the field. There must be collaboration between learning institutions in other countries, and good opportunities for international exchanges for all first- and second-cycle students and teachers. SLU must provide education with applications for developing countries, and education which is also attractive to foreign students from both industrialised and developing countries.

Apart from the above, changes proposed must be formulated so that pedagogic quality, the student environment, and collaboration with the various stakeholders are protected.

Basis

The costs of education must be described for the respective study programmes, as well as for the respective locations and for the University taken as a whole. The University Administration, the University Animal Hospital, and the SLU Library are responsible for submitting the basic data required and, if needed, for taking part in the analysis of changes proposed.

Existing study programmes (announced for the 2011/12 academic year) must be described with educational plans in Swedish and English, a compilation of programme evaluations (student evaluations in connection with degree applications), and other descriptions requested by the investigating group. The faculties are responsible for submitting the basic data required. In addition, the faculties must clarify the cooperation agreements (or similar) that apply to current study programmes and keep the collaboration partners concerned notified of this investigation and pending changes to the range of programmes.

The results of the investigation

The investigation is to propose changes to the range of programmes regarding localization and structure. The goal is a range of programmes based on SLU strategy and which is attractive to both students and employers while education in 2015 is to be carried out with greater effectiveness of resources than 2010, within the assigned frameworks. The respective proposals must be accompanied by an economic analysis showing the savings in resources they expect to achieve. The analysis must also show the costs of change expected to arise from the changes proposed.

Localization means the SLU location where the respective education programme is to be carried out. Proposals for changes in localization must also be accompanied by a impact analysis for staff and students, both on the location the education moves from and on the proposed location where the education is to move to.

Structure here means how the various programmes relate to each other – whether they overlap and/or supplement each other, and how they make use of resources in common through joint classes or other method. This also includes whether the respective study programmes are first- or second-cycle, focus on a general or a vocational degree, and whether they are carried out as a joint programme or offer different specializations. The main goal and schematically contents therefore need to be described for the respective study programmes in order to clarify the proposed structure of education.

Carrying out the investigation

The task of the investigation is large and complex, while the task of the Board implies first reporting very early on. The work should therefore be separated into a preliminary phase, primarily focused on analysis of the localisation of existing study programmes along with collection of data and information of significance for an analysis of the contents and structure of the programmes.

Phase 1 of the investigation covers

- Analysis of existing costs for the respective study programmes and alternative costs linked to another location.
- Schematically analyses by location of teachers' and researchers' focus of research and subject profile in relation to the study programmes in the various locations.

For the second phase of the investigation, it is necessary to create a group representing high academic competence and experience in first- and second-cycle education from different countries. Such competences should primarily be taken from organisations outside SLU and gathered into an investigating group that will be responsible for the proposals for a new education structure. Apart from the investigating group, phase two also needs a person with overall responsibility who can be taken from within the group or from SLU.

Phase 2 of the investigation covers

- Preparing proposals for programme offerings that, when carried out, use resources efficiently, and are properly grounded in SLU's new strategy. The proposal must cover localization and structure for the programme offering, as well as the primary goal, contents, and implementation for the respective study programmes.

Schedule

February 2012	The Vice-Chancellor affirms the investigation commission.
March - April 2012	The Deputy Vice-Chancellor designates an investigating group and a manager responsible for the second phase of the investigation. The investigation will submit an initial progress report to the Management Group (Ledningsrådet), the Council of Education at First- and Second-cycle (GUR), and the Board. Programme syllabi* must be submitted to SLUkurs no later than April 30.
May - August 2012	Other programme descriptions* requested by the investigating group, provisionally to be submitted no later than May 31. Compilation of programme evaluations* (student evaluations in connection with degree applications), covering responses until and including June 30, 2012, submitted no later than August 31.
September 2012	The investigation submits proposals on localization of study programmes to the Management Group, GUR, and the Board.
October 2012	The investigation submits proposals on the structure of study programmes to the Management Group, GUR, and the Board.
October - November 2012	Broad SLU internal referrals.
December 2012	The Board makes decisions on localization and the overall programme structure.
Winter/Spring 2013	The proposals from the investigation on the new range of programmes are further handled within the university's education bodies.
June 2013	Decision by the Board and Vice-Chancellor on new programme offerings beginning academic year 2014/15.
Fall 2013	The faculties decide on new/revised programme syllabi and changed course plans.
Fall/Winter/Spring 2013/14	Promotion of the new range of programmes.
August 2014	The first batch of students begin the new/revised study programmes.

*) For programmes announced for the academic year 2011/12.

Other investigations

The investigation must take the proposals set forth as part of the ongoing autonomy work, including investigations into the future organisation of SLU, into consideration.

Other ongoing investigations related to education initiated and/or funded by the Vice-Chancellor or the Council of Education at First- and Second-cycle (GUR) must be concluded as planned. The results of these investigations, where they are relevant, must be taken into consideration by this investigation.

Stakeholders

Those responsible for education at different levels within SLU (university, faculties, departments) and the student unions may be consulted as experts by the investigation, but SLU education bodies (study programme boards, programme boards, councils, etc.) will not take part in the work of the investigation until a proposal from the investigation is to be considered.

The investigation must obtain viewpoints from external stakeholders, and national and international collaborating partners.

Student and staff organisations will be kept continuously informed of the investigation through the information provided to the Board and GUR in accordance with the timetable above. In addition, the investigation must regularly consult with student and staff organisations on the results of the investigation and expected proposals.

Resources

The costs of the investigation are covered by the Vice-Chancellor's strategic funds for education (cost centre 1000000, project 89, free field 10000001) up to SEK 350,000. Of these funds, a maximum of SEK 50,000 may be used for phase 1 and SEK 300,000 for phase 2.

The investigation must pay for:

- Expenditures and any services purchased for the investigation
- Remuneration for members of the investigating group
- Travel costs for the investigating group and SLU employees asked to take part
- Remuneration and travel costs for students asked to take part