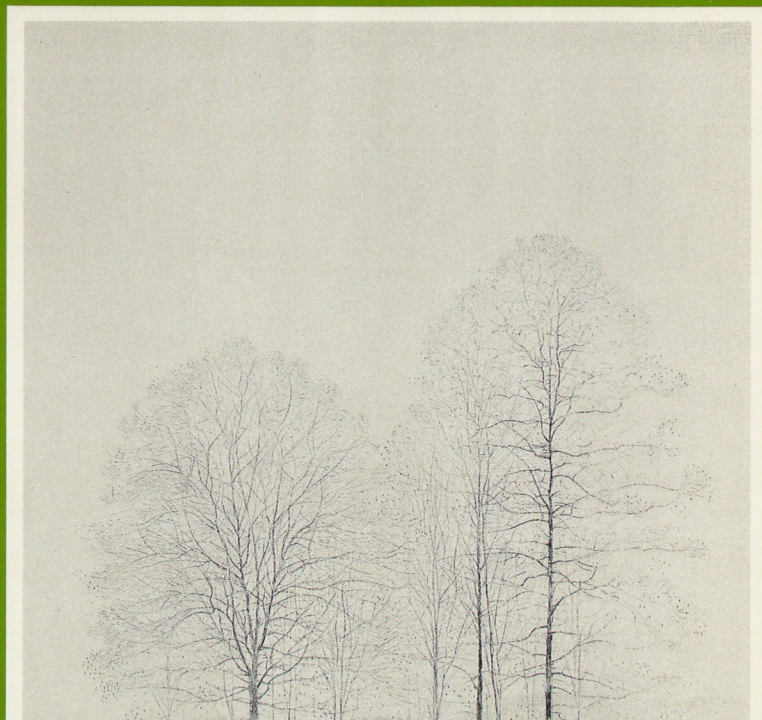


# LANDSCAPE AGRICULTURE & FORESTRY IN SWEDISH HIGHER EDUCATION



**Ur KB:s samlingar**

Digitaliserad år 2015



National Library  
of Sweden

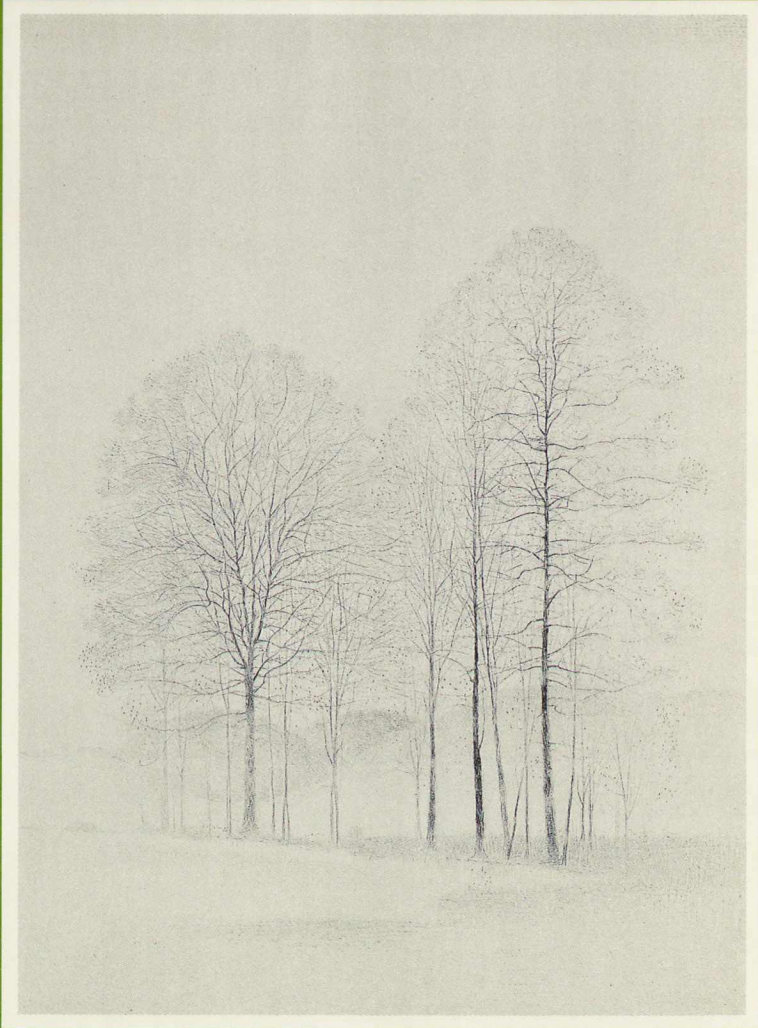
ENGLISH SUMMARY

Ministry of Agriculture Review of  
the Swedish University of Agricultural Sciences

SOU 1991:101



# LANDSCAPE AGRICULTURE & FORESTRY IN SWEDISH HIGHER EDUCATION

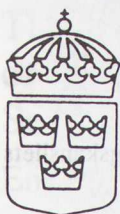


ENGLISH SUMMARY

Ministry of Agriculture Review of  
the Swedish University of Agricultural Sciences

SOU 1991:101

Ref KB 0c



Statens offentliga utredningar  
1991:101  
Jordbruksdepartementet

# Landscape Agriculture & Forestry in Swedish Higher Education

English Summary

Ministry of Agriculture Review of the  
Swedish University of Agricultural  
Sciences

Sammanfattning av utredningen angående översyn av  
Sveriges lantbruksuniversitet, Del 5  
Stockholm 1992



SOU och Ds kan köpas från Allmänna Förlaget, som också på uppdrag av regeringskansliets förvaltningskontor ombesörjer remissutsändningar av dessa publikationer.



Adress: Allmänna Förlaget  
Kundtjänst  
106 47 Stockholm  
Tel 08/739 96 30  
Telefax: 08/739 95 48

Publikationerna kan också köpas i Informationsbokhandeln, Malmorgsgatan 5, Stockholm.

NORSTEDTS TRYCKERI AB  
Stockholm 1992

ISBN 91-38-10977-8  
ISSN 0375-250X

# The Swedish Ministry of Agriculture Review of the Swedish University of Agricultural Sciences (SOU 1991:101)

## English Summary

<i>Contents</i>	<i>Page</i>
1 Assignment and Procedure	5
1.1 Assignment	5
1.2 Evaluation Procedure	5
2 The Commission's Conclusions and Recommendations	9
2.1 The Role of the SUAS in Agricultural Research	9
2.2 Development since 1977	10
2.3 Research and Experimental Work	12
2.4 Proposed Changes in the Overall Research Policy	19
2.5 Undergraduate and Postgraduate Education, Recurrent Education	22
2.6 Research Information and Extension	29
2.7 Activities for Developing Countries	30
2.8 Relations to Various Partners and Customers	31
2.9 Organisation and Governance	34





## 1.1 Assignment

In November 1989 the Swedish Minister of Agriculture assigned to Professor Ingvar Lindqvist to review the Swedish University of Agricultural Sciences (SUAS). It was a wide assignment, comprising teaching and research as well as extension and information activities, organisation, administration and management efficiency.

The review of the SUAS is the first of its kind in Sweden. Never before has an entire Swedish university been evaluated.

Important objectives of the review were to assess the standard of the University's activities, to examine the development during the past ten years, and to indicate the University's ability to cope with the major changes and challenges of the near future, mainly the new agriculture and food policy, the environment protection aspects, and the prospect of Sweden's joining of the European communities.

As the merger of the earlier separate Colleges of Agriculture, Forestry and Veterinary Medicine into the SUAS took place in 1977 the review should also focus on the effects of the merger, such as cooperation between faculties and related fields of knowledge. Furthermore, the University's cooperation with the outside world in terms of other universities, as well as various users and agencies within agriculture, forestry and veterinary medicine was to be covered in the review.

Part of the assignment concerned statistics on research expenditure and on educational costs as compared to similar undergraduate programmes in other Swedish universities, and on the future supply and need of graduates from the SUAS.

Mainly, however, the objectives of the review were to evaluate.

## 1.2 Evaluation Procedure

The commission's assignment did not include the short undergraduate programmes (the 1-2 year programmes) but the five MSc-level programmes in Agriculture, Horticulture, Landscape Architecture, Forestry, and Veterinary Medicine. In order to deal with the evaluation issues the commission decided to invite a number of qualified foreign teams to review undergraduate and postgraduate education and research within each SUAS faculty.

As the assignment of the commission as regards research was to make an overall assessment, i.e. not by department or discipline, it was decided to recruit each team from a single faculty - corresponding to the one to be evaluated.



luated - instead of composing mixed international teams, which was the model introduced by Ingvar Lindqvist some ten years ago for the international evaluations of research funded by the Swedish Natural Science Research Council.

The commission also saw an advantage in letting the same team evaluate teaching as well as research within a faculty, as connections and common problems then might be identified.

For the Faculty of Agriculture the commission invited a team from the Wageningen Agricultural University and the Agricultural Research Department of the Dutch Ministry of Agriculture, Nature Management and Fisheries. The Faculty of Forestry was evaluated by a team from the University of Helsinki and the Finnish Research Institute, and the Faculty of Veterinary Medicine was reviewed by a team from the Faculty of Veterinary Medicine at the University of Utrecht. All the teams were chosen because of their standing in the fields concerned, and after consultations with the faculties of the SUAS. Another reason for choosing the Dutch teams was that the Netherlands, together with the United Kingdom, are more or less pioneers in evaluation of higher education. The commission was very much attracted by the model used by the Dutch, that is a mixture of peer review and quantitative indicators.

The objectives of the evaluation the foreign expert teams were to make were discussed with the teams and formulated in accordance with the commission's interpretation of its assignment. In addition to the objectives mentioned by the Swedish Minister of Agriculture - to indicate the standard of the teaching and research activities and the ability to cope with future changes - the commission emphasized the dynamic aspects of the evaluation process. The commission regarded evaluation as an important instrument for change and improvement, similar to what has been the case with the Swedish Natural Science Research Council's foreign expert teams. They have combined criticism with advice, which has been appreciated by the research teams as well as by the Research Council. The commission's interpretation of its assignment was approved of by the Minister of Agriculture.

Accordingly, the commission's teams were given the objectives to assess the standard of the teaching and research activities of the faculty concerned at the SUAS, to stimulate the further development of those activities, and to indicate the faculty's capacity for change and its ability to meet new demands.

The plan with foreign expert teams could only be carried out provided that the SUAS faculties cooperated in making certain preparations. They were to inform about the study programmes and their own activities, they should make self-evaluations and they were to present their current problems, discussions and plans for change and improvement.

This part of the evaluation served both as an introduction for the evaluation teams and as a preparation for the SUAS faculties and committees for undergraduate studies for participating in the evaluation process. Some of the undergraduate programmes had recently been reviewed locally at the time when

the teams were appointed. It was therefore convenient to introduce the teams to the analyses of problems and needs that had been made in connection with these reviews. Furthermore - and most important - the teams were introduced to the views of the programme committees for undergraduate studies.

The material the faculties and committees for undergraduate studies at the SUAS presented as a background for the evaluation teams was quite comprehensive. It comprised descriptions, surveys, analyses and statistics on each undergraduate programme together with descriptions of the development of each college or faculty. It also contained lists of publications during the period 1988-90 within each department, as well as information on research programmes and projects, participation in international scientific meetings, international assignments etc.

All the evaluation teams received a common introduction about the SUAS, its background, its role and functions, and recent developments within the fields of agriculture, forestry and veterinary medicine in Sweden. Also, a short description of the Swedish higher education system was provided, as well as an overview of undergraduate and postgraduate education at the SUAS.

These introductory presentations, the self-evaluation reports and other SUAS material, and the reports from the foreign evaluation teams are published as a separate part of the commission's report under the title Evaluation Report.





### 2.1 The Role of the SUAS in Agricultural Research

Looking at research expenditure at universities in OECD member countries Sweden has during the 1980s had a top position as regards the role of agricultural research. About 10 % of the total university R&D expenditure in Sweden goes to agricultural research, whereas other countries spend less, in average 6-7 %, on agricultural research.

This is mainly due to the merger in Sweden of several small research institutes into the former separate Colleges of Agriculture, Forestry and Veterinary Medicine, and after 1977 into the SUAS. Many other countries in Europe have a system with separate research institutes and extension activities outside the universities. In for instance the other Nordic countries and in the Netherlands, 70-80 % of the public expenditure on agricultural research is channeled to such institutes. In Sweden, however, between 80 and 90 % of the public R&D expenditure on agriculture is concentrated to the SUAS, either as direct budget allocations or as grants from research councils and government agencies. In this respect, Sweden is more like the United States, where the universities have a strong position within agricultural research.

The role of the SUAS in Swedish agricultural research has to be noted for two reasons. First, when the SUAS is being compared with foreign agricultural universities, or a SUAS faculty with a corresponding foreign faculty, one has to be aware of the fact that in many cases the foreign counterpart is not only a university but also part of the institute organisation. Secondly, the dominating position of the SUAS in Sweden means that the commission's assignment as to research expenditure of the University is equivalent to commenting on the total public R&D expenditure on agriculture in Sweden.

The total - public and private - spending on agricultural research in proportion to the total national R&D effort is smaller in Sweden than in the other Nordic countries. The public spending on agricultural R&D in Sweden is about twice as high as in Denmark, Norway and Finland, respectively, which means that the national effort is roughly on the same level if the differences in population are taken into consideration.

Looking at public and private expenditure on agricultural R&D in relation to primary production within agricultural and food industry and forestry, the situation in Sweden is rather similar to the other Nordic countries. The company spending on R&D is low compared to other branches, and in Sweden the public expenditure on R&D in forestry is on a lower level than in agriculture.



The commission has examined the long-term plans presented by the SUAS since 1981 as preparation and basis for the Government's Research Policy Bills. Other material, such as proposals from various commissions and committees, Government Bills, and decisions by Parliament, has also been reviewed by the commission. A special study has been carried out for the commission, on the changes in funding since 1977 of each SUAS faculty and its research programme areas as well as its departments.

The commission's conclusion is that the SUAS has been active in identifying and presenting important new areas for research, and it has also been engaged in developing these areas at the University. The R&D development in agriculture and forestry during the decade came to a large extent to focus on the long-term objectives and areas of priority presented in the first five-year plan in 1981. Among the SUAS priorities were biological production and production processes, natural resources and environment, raw materials for energy and industry, food science, animal health, and forest yield. In the subsequent long-term plans the SUAS developed the themes brought up in 1981 and also gave high priority to undergraduate and postgraduate education.

According to the commission the SUAS has played an important role in emphasizing long-term needs of knowledge as well as in interacting with the political level, mainly the Ministry of Agriculture, the research councils, various government agencies and the private companies and other users within agriculture and forestry.

The SUAS has to a large extent been successful in getting support for its priorities. Many of the proposals have been accepted and realized. It should be mentioned, however, that formal responsibility and government funds for many of the research programmes within the fields given priority to by the SUAS have been entrusted to research councils and mission-oriented research agencies.

Many new fields of research have been introduced at the SUAS since 1977, and reallocations of funds for various purposes have been made. In total, the SUAS budget allocations have, according to the commission's special study, increased from 409 to 430 Million SEK (in 1989 currency) between 1977 and 1990. By various decisions increases have been made by 81 Million SEK, mainly for various research purposes. During this period cut backs on allocations have been made by the Government by 35 Million SEK. 26 Million SEK have disappeared since 1977 due to insufficient adjustment of the SUAS budget allocations to the current price level, an operation performed each year by the Government and Parliament.

The remaining net increase, 20 Million SEK, has to a large extent been reallocated to undergraduate teaching. New options in biotechnology and food science within the MSc programmes in Agriculture and Horticulture



have been developed and started, and the number of new entrants in the MSc programme in Forestry has been increased.

SOU 1991:101  
Del 5

The consequence has been that the budget allocations for research have remained roughly the same from 1977 to 1990. That means that all the new research purposes, decided on by Government and Parliament during this period, and accompanied by increased budget allocations to the SUAS, have been realized within a constant budget scope, i.e. by reallocations. During the period, 29 % of the University's research budget has been reallocated.

The commission finds such an overall pace of change in research funding normal and acceptable - between 2 and 3 % per year. As to the reallocation of funds from research to undergraduate education the University had, according to the commission, good reasons for the actions taken.

Within the *Faculty of Agriculture* a noticeable reallocation of funds from applied research and experiments to basic and strategic research has been made. At the same time the private funding of applied research and experimental work has increased. According to the commission this is a desirable development, which should continue.

The *Faculty of Forestry* has passed a stage of dynamic change and development since 1977. Interest has been increasingly directed towards bioenergy studies, environment and nature protection, and biotechnology. At the same time production studies have been developed. In total, there has been a large expansion of forestry research, mainly by external funding from research councils and mission-oriented research agencies.

The commission is impressed by the dynamism shown by the Faculty of Forestry, and the development is very much in the direction desired by Government and Parliament. The commission is, however, worried about some of the consequences. In 1990 half the Faculty's budget allocations for research was being used for other purposes than in 1977, which has seriously affected the University funding of traditional forestry disciplines. External research grants have been awarded mainly to non-traditional forest research areas, such as environment and natural resources, and bioenergy. The establishment of a necessary base in the University for such new fields has brought about a drain from the funds available for the traditional fields. During the period the external funding has increased from 47 to 70 % of the total research expenditure of the Faculty. The reduction in University funding of traditional forest research amounts to about 33 %.

External funding of research has increased considerably at all the SUAS faculties since 1977, and its large share at the Faculty of Forestry raises the question if the present Swedish policy for funding and performance of research is adequate.

The *Faculty of Veterinary Medicine* has kept about the same pace of change in its research as has the Faculty of Agriculture, i.e. 25-30 % of the allocations are devoted to new purposes in 1990. The Faculty has given priority to animal health, and to quality in food production, as well as to basic



research in a more general sense. The commission sees good reasons to approve of the development of the Faculty.

SOU 1991:101  
Del 5

## 2.3 Research and Experimental Work

Research and experimental work are the dominating activities of the SUAS. About 70 % of its budget allocations are devoted to such activities.

### *Bibliometric study*

The commission has made a special study of the scientific publication activity of the SUAS during the 1980s. The study has been performed at the department of sociology at the University of Umeå.

According to this study the publication of the SUAS researchers in journals covered by the Science Citation Index (SCI) has increased considerably during the 1980s. Looking at papers etc in journals within the fields of agriculture, including dairy, animal science and soil science, as well as veterinary medicine, food science and technology, and forestry, the number of publications from the SUAS has doubled between 1980 and 1989, whereas the total number of publications - on the world level - has been more or less constant, with a small increase in 1989. The SUAS has taken a larger share of the total Swedish publications in such journals during the 1980s, from half to two thirds of the total number. At the same time the SUAS publishing in more general scientific journals, mainly in biology, biomedicine, clinical medicine and chemistry, has increased even more and is almost three times as large as in 1980. The share of general scientific papers was about half the total SUAS publication in 1977 and about 60 % in 1989.

This development reflects the changes of research priorities within the SUAS described in the previous section of this summary, i.e. the priority given to basic and strategic research in the faculties. It can also be noted that agriculture in wide sense, including veterinary medicine and forestry, is one of the fields where Sweden's share of the total number of papers in the SCI is the highest. It is only in biomedicine, clinical medicine and biology that the Swedish share of papers in journals covered by the SCI is higher than in agriculture.

### *Research Priorities*

The commission has studied the OECD reports on research priorities and changes in such priorities in the member countries during the 1980s. It appears that the areas of priority in most OECD member countries, i.e. environment and protection of natural resources, biotechnology, product quality in agriculture, food technology, sustainable production, and development of

new products, are very much in focus at the SUAS. The University's long-term plans are obviously very well coordinated with the priorities set by a majority of OECD member countries.

SOU 1991:101  
Del 5

The SUAS is even more explicit in emphasizing basic research than is the majority of the OECD member countries. An exception is the United States, where research on the science base for agriculture is given very high priority. The National Academy of Sciences regards this field as being of utmost importance for the future. According to the President's of the United States ranking of national research priorities, basic research in agriculture is second only to research on the AIDS disease.

The commission has noticed that the foreign evaluation teams give high priority to basic research and therefore recommends, together with the teams and referring to the United States' setting of priorities, that basic research be given high priority also during the period ahead.

In their reports *the foreign evaluation teams* also make other significant comments on the research priorities of the SUAS faculties. In the Wageningen team's opinion the change to a market-regulated agriculture will have profound consequences for Swedish agriculture and form an important challenge for the SUAS. The change from the present primary physical-economic production into a resource-effective, market-regulated agricultural chain including production, processing and consumption needs to be supported scientifically. Beside the extension from production to processing and consumption, environmental studies and landscape planning will also be important issues in the future.

According to the commission the recommendations from the Wageningen team should be taken seriously by the Faculty of Agriculture and the SUAS. The reorientation of the Faculty research which has been initiated and presented in the SUAS long-term plan in 1989 should be forcefully pursued. It has to be observed, however, that the present division of labour between the SUAS, the Faculty of Technology at the University of Lund (food technology) and the Gothenburg Institute for Food Research should not be changed.

The Helsinki team considers the five major research programmes within the Faculty of Forestry to be sound. According to the team proper care has been taken in the strategic planning to allow for the necessary processes of change and renewal. In recent years the problems of the environment and nature protection have arisen to a par with more traditional work on growth, yield and their ecological basis. A greater share also has been given to bio-energy studies and, to a lesser extent, to economic aspects, especially marketing. The latest efforts concern biotechnology; the emphasis on strictly basic research should, however, in the team's opinion be avoided.

According to the Utrecht team the research within the Faculty of Veterinary Medicine is up-to-date and relevant for the advancement of veterinary medicine in Sweden. However, there is in the team's opinion insufficient attention to research on infectious diseases at the more modern, molecular-biological level. Future-oriented research will also have to focus on preventive medi-



cine, including "vaccinology" and epidemiology. Food quality and food safety will also require more attention as well as the relations between veterinary medicine and the environment.

### *General Scientific Research*

The research and experimental work at the SUAS can be divided into general scientific research and specific research in agriculture, forestry and veterinary medicine. The general scientific research is in most cases basic research and is of great importance to the more SUAS-specific research and experimental work. The general research is quite extensive within the Faculties of Agriculture and Veterinary Medicine, less so in the Faculty of Forestry.

According to the evaluations made by the Council of Forestry and Agricultural Research and by other research councils, using international expert teams, the general scientific research at the SUAS is of a high international standard and in general on the same level as Swedish natural science research within related areas. This impression is confirmed by the bibliometric study as well as by the foreign evaluation teams. The teams have based their judgments on information on publications, activities in international scientific association and international exchange activities as well as on observations and impressions in connection with the site visits.

According to the commission the university funding of the general scientific research at the SUAS is insufficient in most cases.

### *Specific SUAS Research*

The research specific to the SUAS areas of responsibility should be of a long-range nature and be based on available knowledge in fundamental science. There must be links and cooperation between the SUAS-specific research and the more general scientific research both within and outside the SUAS. The university funding of the specific SUAS research is, as well as the funding of the more general research, insufficient in most cases.

The specific SUAS research has also been evaluated by national and international expert teams. Neither those evaluations nor the bibliometric study indicate any weaknesses of the research. It should be noticed, however, that the specific SUAS research has not been evaluated to the same extent as has the more general scientific research at the SUAS. The commission recommends that the SUAS-specific research be more comprehensively and regularly evaluated.

Severe criticism has, however, been brought forward implying that more overall studies, with a focus on synthesis, system analysis and interdisciplinarity, have been neglected in the SUAS-specific research. The teams evaluating the Faculty of Agriculture and the Faculty of Forestry have emphasized this deficiency. Other sources have also conveyed the same opinion to the

commission. The criticism does not concern the Faculty of Veterinary Medicine and its research. According to available indicators and examinations it seems to be adequate.

SOU 1991:101  
Del 5

Common for all the three SUAS faculties is, however, that they get criticism from the evaluation teams for lack of contact and cooperation between departments.

The commission agrees with the Wageningen and Helsinki teams as to the problems and circumstances which have caused the deficiencies of the SUAS-specific research. In the teams' analyses three factors are pointed out as primary causes: the geographical distribution of faculties and departments, the high proportion of external funding of research, and the present organisation of the SUAS.

### *The Geographical Distribution of Faculties and Departments*

In the commission's opinion research on biological production in natural surroundings, on growth, breeding, yield and ecology, has to be distributed according to varying conditions in Sweden. Field stations and experiments in many places with varying biological and other environment conditions are therefore necessary. This should not, however, be implemented in a way that jeopardizes the quality of research and research-related undergraduate education.

According to the commission the Faculty of Forestry has been most seriously affected by the geographical distribution of its activities. Half the faculty is located in Uppsala, a large part in Umeå, a smaller part at Garpenberg, and there is also a research unit at Alnarp. The MSc programme in Forestry is divided among Umeå, Uppsala and Garpenberg.

There are three alternative ways to deal with the geographical division of the Faculty of Forestry. The Faculty could be concentrated to Uppsala or to Umeå, or there could be a combination of Uppsala and Umeå.

A concentration to Uppsala would be the best alternative for many reasons. It is, however, hardly realistic at present, as it was not chosen when the College of Forestry was moved from Stockholm in the 1970s. A concentration to Umeå has its advantages, among them a closer cooperation with the University of Umeå. The drawbacks are, however, considerable, as new premises have to be provided in Umeå and the links to the Faculty of Agriculture and to the University of Uppsala would be cut off. A concentration to Umeå should, according to the commission, implicate that the Faculty of Forestry be separated from the SUAS and become part of the University of Umeå.

The commission recommends that the Faculty of Forestry be concentrated to two centres, Uppsala and Umeå. In order to make such a construction work successfully a better balance has to be established between Uppsala and Umeå as to the role and function in undergraduate teaching as well as



research. The Helsinki team has emphasized this and also pointed out the connection between undergraduate education, postgraduate education and research in Forestry. The MSc in Forestry has a marked professional profile but has shortcomings as a preparation for doctoral training. The enrollment of graduates with a MSc degree in Forestry to postgraduate education is comparatively low - less than 60 % of the total number of doctoral students.

According to the Helsinki team the proportion of postgraduate students without a forestry background in undergraduate studies has reached a level that must be regarded as alarming. Such persons usually lack the necessary versatile understanding of forestry as a whole. The team does consider some "new blood" as necessary to keep the scientific thinking in the departments alive and fruitful. However, as the team puts it, departments without any MSc in Forestry as postgraduate student will have a tendency to become estranged from other departments and from real forestry problems.

The team is also concerned about the almost complete lack in some Uppsala departments of staff members with a basic training in forestry, and recommends a better balance in order to avoid alienation from the problems of practical forestry. Long-term measures in staff development are regarded as necessary to remedy this shortcoming.

The commission shares the Helsinki team's opinion and concern about the present situation at the Faculty of Forestry. If no measures are taken to change the imbalance and development there is an obvious risk that the Uppsala part of the Faculty will become more of a Faculty of Natural Sciences. As a consequence, the Faculty of Forestry would lose much of its present qualities, in particular the broad mission to cover the whole concept of forest, as the Helsinki team puts it.

The analysis presented by the Helsinki team calls for a coordinated action. The large, at present not adequately utilized resource in Uppsala for teaching in basic sciences should be used for the first year of the MSc in Forestry programme.

The Helsinki team has pointed out that the splitting-up of forestry research into three units - Uppsala, Umeå and Garpenberg - has had several negative effects. According to the commission, forestry research at Garpenberg is much too isolated and would profit from being moved to Uppsala or Umeå and made part of larger research milieus.

Furthermore, the forest technology research at Garpenberg has been criticised by representatives of the Swedish forest industry and forest owners, among them the Swedish Pulp and Paper Association. Their point is that the SUAS forest technology research should have a more long-term orientation and not compete with the branch research institute (the Forest Operations Institute).

The commission recommends that the Faculty of Forestry decides where to move the research at Garpenberg and also makes a review of the research in forest technology.

The unit at Alnarp for forestry research in the south of Sweden has obviously been successful from a scientific point of view as well as for the users and should therefore be further developed.

Also for the *Faculty of Agriculture* its geographical distribution has caused problems. There are two centres, one in Uppsala and one at Alnarp, which should be easier to handle than three or four which is the case for the Faculty of Forestry. According to the commission the present structure with two centres should be maintained. There are many good reasons for the location at Alnarp, among them the cooperation with the University of Lund.

It is, however, important to improve contacts and cooperation between related fields, and the commission would like to forward to the Faculty the proposals and recommendations by the Wageningen team.

According to the commission there is also a need to give Horticulture and Landscape Architecture more of a profile of their own, its research as well as the MSc programmes, within the SUAS. The Faculty of Agriculture is very large and heterogenous and tends to be dominated by the Agronomist perspective. The commission recommends that the Faculty be divided into two, one for Agriculture and one for Horticulture and Landscape Planning.

### *Field Trials and Experiments*

In section 2.1 above it was pointed out that the Swedish system for R&D in agriculture, with the merger of a number of separate research institutes into the higher education institutions, is different from the organisation in many other European countries. The commission's assignment included a critical examination of the Swedish system and other alternatives.

Many countries have a model with two parallel R&D organisations in agriculture, universities or colleges of agriculture and research institutes with public funding. The higher education institutions are often oriented towards basic and strategic research whereas the institutes focus on applied research, experiments and field trials.

The commission's impression is that both models seem to work. The comparisons the commission has made between the models have not, however, convinced the commission that the model with two parallel organisations is superior to the integrated model practised in Sweden and in the United States.

The commission therefore recommends that the existing model be kept in Sweden, which in our case means that the building-up of basic research in a separate institute organisation can be avoided, something that may be of advantage in large countries but hardly in Sweden.

In making this recommendation the commission also emphasizes that the applied research, experiments and field trials should be more integrated into the research activities of the departments, a development which is under way in for instance Animal Science.



It has been said already that the SUAS-specific research should be of a long-term nature. According to the commission there should also be possibilities to use the SUAS competence and facilities for short-term applied research and problem-solving relevant to users within the agricultural sector. In such cases, however, it would be commissioned R&D, paid for by the customer. According to the description in section 2.2 the development during the past ten years has, in fact, been in that direction, i.e. with a reduction of the SUAS budget allocations to applied research and development work and increased funding from private sources.

With an explicit policy declaration from the Government and Parliament it should be possible for the SUAS to continue the development already started concerning objectives and responsibility for applied research and experiments, and the integration of such activities with basic and strategic research. In connection with such a development the commission recommends that the experiments and field trials be reduced and concentrated to a couple of centres.

In presenting this general outline for the future development the commission is aware of the need to find a good solution for the long-time experiments on growth and yield, including data collection during several decades. In forestry, for instance, long-term experiments on growth and yield of forest stands in various natural conditions and under different treatments have been going on since the beginning of this century, and great attention has been paid to the collection and utilization of such material. The value of the collected data is regarded as very high in forestry research, and according to the Helsinki team the Swedish material is unique even at a global level. The team recommends that the means be found to continue these studies. Also within the Faculty of Agriculture there are some studies and experiments going on for a long time which in a similar way are used for research projects in several disciplines.

In the commission's opinion such activities should not be included in the budget discussions each year on cut backs and reallocation of funds. They should be dealt with separately, with respect to their long-term character and usefulness to many disciplines. There is a resemblance between such long-term experiments and the access for Swedish researchers to the advanced and expensive scientific equipment paid for by Sweden's membership fees to the CERN, the European Space Agency, the European Southern Observatory, etc. Such fees are kept together as a separate budget entry and do not form part of the budgets of the research councils concerned. A similar procedure is recommended for the long-term experiments and activities at the SUAS, including also a minimum of animal stock used by departments within the Faculties of Agriculture and Veterinary Medicine. The commission recommends that a careful examination of such activities at the SUAS be made together with an estimation of the cost.



## 2.4 Proposed Changes in the Overall Research Policy

SOU 1991:101  
Del 5

In total, the external funding of research at the SUAS equals the budget allocations for research in all the faculties together. In the Faculties of Agriculture and Veterinary Medicine the external funding amounts to about 40 % of the total R&D expenditure, and in the Faculty of Forestry the corresponding share is 70 %. Private funding amounts to about 15 % of the total SUAS R&D expenditure. Most of the external research funding comes from public sources, research councils and mission-oriented research agencies.

In section 2.2 the connection between the present situation and the development during the past ten years has been described. The SUAS has in its long-term plans and budget requests presented many new research areas. The proposals have to a large extent been accepted, but formal responsibility and funds for research programmes have in most cases been given to research councils and agencies (food science, forestry research, sustainable production, environment research etc). In order to carry out research within the fields given priority to by the SUAS its researchers have had to apply for grants from the research councils or agencies.

This procedure is an application of the overall Swedish research policy decided on by the Government and Parliament. During the 1960s and particularly during the 1970s there had been an impressive expansion of mission-oriented R&D in Sweden, and there was a wide-spread and firm support in the Swedish society for research. The usefulness of research activities, i.e. the instrumental value of knowledge, was the dominating perspective, and sectorial research had its heyday.

The role of the higher education institutions in the R&D system was defined in 1979. They should have a leading part in the performance of all kinds of research. Soon afterwards it was decided that the research councils should have the major responsibility for the development of basic research, and various mission-oriented research agencies for sectorial research. As a result of proposals from a Government commission, the view that research could have either scientific qualities or relevance to the society got official support. Accordingly, the research councils became the warrants of scientific quality and the agencies the warrants of relevance to society. Separate research institutes should be avoided because of the risk of isolation from the scientific community, and the universities were seen as principal performers of research. The Government's Research Policy Bills and the decisions by Parliament during the 1980s have been in strict accordance with this policy.

The development at the SUAS, and at the Faculty of Forestry in particular, illustrates the effects of this research policy. Within the Faculty of Forestry a number of new research programmes have been started, for instance on bio-energy, pollution and other environmental problems, and production. In order to provide a necessary base within the university for such programmes 22 Million SEK have been reallocated, and further, a number of posts have



been transferred to the new areas of priority. In total, half the Faculty's part of the University's allocations for research was in 1990 devoted to other areas and purposes than in 1977. The traditional forestry disciplines have got their university allocations reduced by about one third. Part of the explanation to this severe cut is the unsufficient adjustment to the current price level, made by the Government and Parliament.

Between 1977 and 1990 the external funding of research at the Faculty of Forestry has increased from 45 to 125 Million SEK, which is an increase from 47 to 70 % of the research expenditure. The funding of environmental research in the Faculty by the Swedish National Board for Environment Protection now equals the private funding of production-oriented research, which is quite a dramatic change.

The Faculty of Forestry could have chosen to protect the traditional forestry disciplines and maintain the previous level of funding of such areas. They should then have kept away from the environmental research and the new programmes of the research councils and agencies. In that case the Faculty would have been criticised for its lack of interest in fields given priority to by the political level (and by the SUAS, in the first place). If the Faculty wanted to take up the new fields the rule of the game, according to the present Swedish research policy, made it necessary to reduce the university allocations to the fields available, i.e. the traditional forestry disciplines.

The process of scientific development means that new fields of research emerge and some old ones lose their importance and should be closed down or changed. The decisive weakness in the Swedish research policy is that it imposes reductions on the faculties where new research areas should be developed. This effect is produced by the model chosen for introducing new areas into the R&D system, i.e. by external funding.

The reduction of university allocations to traditional forestry fields is not the result of the setting of priorities on the political level, nor at the SUAS. The commission's reply to the critics from the forest industry and the forest owners is that the SUAS and the Faculty of Forestry have behaved according to the overall research policy and the rules established by the Government and Parliament. As the result is unfortunate the rules should be changed.

The major problem is the division of tasks and responsibility among the actors in the R&D system. The role of the higher education institutions as performers of research has been over-emphasized to a degree that has left them with very little influence on the research they perform. Influence and power of decision has gradually been transferred to the research councils and the mission-oriented agencies. The research policy is based on the assumption that such a division of tasks and responsibility leads to research of higher scientific quality and/or more relevance to society than if research funds are awarded directly to the universities.

The empirical evidence after ten years supports the assumption that research councils are good at selecting promising research projects. International evaluations of research as well as bibliometric and other indications



show that the research councils have to a large extent supported research of good international standard in natural sciences, medicine, forestry and agriculture. The mission-oriented agencies are, according to evaluations made, in some cases good at selecting research projects, and in other cases not at all successful. Furthermore, it is not very clear which authority is the expert on research which combines scientific quality with usefulness for a sector or branch.

The Council of Forestry and Agricultural Research has since a couple of years a large programme running on interdisciplinary research in forestry. According to the Helsinki team, however, the lack of interdisciplinary research within the Faculty of Forestry is a serious weakness. The criticism presented by the Helsinki team as well as by the Wageningen team concerning too much fragmented research indicates that the external funding bodies have not been successful in building up integrated and coherent research programmes. Looking more generally at the present system for funding of research it is obvious that it provides very few incentives to integrated and coherent research programmes and for interdisciplinary research.

In order to establish a better balance in the R&D system and to make it work better the dogmatism of the present research policy should be abandoned.

The research councils, having proved their ability to support basic research in a competent way, should continue to play an important part in the R&D system. Their function should be to *build up* basic research within new fields and to *transfer* research activities, which they have established successfully and which should continue more or less permanently, *to the universities*. Mission-oriented research agencies should be given a similar function.

Furthermore, *several alternative models to build up and run research programmes should be allowed*, i.e. a more pluralistic attitude should replace the present orthodox one. Funds and responsibility for developing new fields and for starting research programmes should be given to universities as well as to research councils and agencies. It could for instance be done in the same way as in Dutch universities, where "conditional research programmes" form an important part of the universities' budgets. These programmes are examined carefully in advance and evaluated regularly. According to the commission there should be a peer review of such programme proposals in Sweden, followed by an evaluation after a number of years. Depending on the nature of the programme, customers should be involved in the review and evaluation procedures.

At the SUAS the conditions are in many respects favourable for developing and running such university programmes. There is a tradition of having research programmes at the University and there are also well established connections and cooperation with various users, organisations and agencies within the fields of agriculture and forestry. According to the commission the present more or less permanent programme committees should be replaced by ad hoc thematic committees, responsible for the development and running of



well-defined research programmes or projects. The introduction of such committees would give better possibilities of making concentrated research efforts and of shifting from one area to another. Thematic research committees are, according to the commission, appropriate places for cooperation with private and public partners and joint funding of research projects and programmes.

An obvious starting-point for university-run research programmes at the SUAS would be the future needs of knowledge, presented at the commission's initiative by the Federation of Swedish Farmers and by representatives of the forest industry and the forest owners. These organisations have identified important issues and research fields in a ten-year perspective, and similar estimates have been made also by public agencies. Other starting-points are the long-term research plans from the SUAS faculties, which will be revised in 1992.

In order to fund university-run research programmes at the SUAS some reallocations within the University should be made. Furthermore, funds for certain research programmes should be transferred to the SUAS from the Council of Forestry and Agricultural Research and the National Swedish Board for Environment Protection.

In addition, the Council of Forestry and Agricultural Research should, like its fellow research councils in Natural Sciences and Medicine, hand over its well-established and successful customers and their grants to the SUAS, as well as to other universities, instead of keeping them over long periods. The Council of Forestry and Agricultural Research should together with the Faculties at the SUAS identify research groups and projects which meet the requirements for being transferred to the University. Well-established research activities funded by mission-oriented agencies should be dealt with in a similar way.

## 2.5 Undergraduate and Postgraduate Education, Recurrent Education

The *MSc programmes in Agriculture, Horticulture and Landscape Architecture* are less expensive per student than the corresponding programmes in natural sciences and engineering at other universities. Examination rates are somewhat higher at the SUAS. The number of applicants to the programmes in Agriculture and Horticulture has decreased considerably during the 1980s, whereas the programme in Landscape Architecture is very popular at present.

The MSc programme in Agriculture is the one most directly affected by the present and future changes of the Swedish agriculture and food policy. The situation is more or less the same in many other countries. In for instance the United States the number of applicants to colleges of agriculture has decreased dramatically and brought about a re-orientation and restructuring of undergraduate education as well as of research in many universities. By emphasizing environmental aspects and natural resources, product quality and



health issues, and by providing more of a science base for agricultural education, some universities in the United States have managed to turn the tide. According to the commission, and to the Wageningen team, similar solutions should be sought in Sweden.

At the same time as the commission has been doing its work there has been much activity going on at the Faculty of Agriculture. A SUAS review of the MSc programmes within the Faculty was presented before the Wageningen team made its evaluation. Later on committees set up by the Faculty have started to work on new curricula for the next academic year.

According to the commission, the observations by the Wageningen team on the present MSc programmes of the Faculty of Agriculture, i.e. that they are more aimed at training good professionals than academic scientists, should be taken seriously by the Faculty committees. The commission shares the view of the team that the MSc programmes should have a better science base and more well-structured alternative specializations later on in the programmes.

The commission is also in favour of the recommendations made by the team on better coordination of the various departments' input in the teaching programme and more social science contents in the programmes. As to the team's recommendation to formalize the distinction between professional and academic training by creating different programmes or study-paths the commission's opinion is that this should be done not only for the MSc programmes but also for the shorter programmes. The shorter programmes are part of the total supply of agricultural education, and the objectives for the various educations should be looked at together.

Against the criticism presented by the Wageningen team it could be said that the employers in general are very satisfied with the graduates from the Faculty of Agriculture. The students, however, are more critical to the teaching and they get support from the Wageningen team. The commission wants to emphasize that the Swedish MSc programmes have to be good enough to stand comparison and competition with corresponding European programmes in a near future. There are many indications that a more solid science base will be needed, as well as a combination of fundamental and applied science and training in problem-solving.

According to the commission the observations and recommendations made by the Wageningen team provide good help for the SUAS to improve the standard of the MSc programmes in Agriculture, Horticulture and Landscape Architecture. The more detailed recommendations for each programme should be noted by the Faculty committees.

The introduction of a BSc degree, proposed in the SUAS review of the MSc programmes, may be a good idea if it is constructed as a part of the MSc programme. It could facilitate international exchange of students. A BSc degree independent of the MSc programmes should, according to the commission, include combination of SUAS courses and other university courses



in natural sciences, social sciences etc, and should be planned together with other universities.

SOU 1991:101  
Del 5

As to the geographic splitting-up of departments the commission agrees with the Wageningen team that a better and more coordinated planning of the courses and teaching programmes should be pursued and that more cooperation between departments is needed.

Like the MSc programmes within the Faculty of Agriculture the *MSc programme in Forestry* is less expensive per student than the university programmes in natural sciences and engineering, and the examination rate is higher. The Forestry programme is very popular and has had a great number of applicants each year during the 1980s.

Also the Faculty of Forestry had started a review of its MSc programme prior to the appointment of the evaluation team. According to a survey made to various employers the graduates are very much appreciated on the labour market. The Faculty was, however, aware of the imbalance between its Umeå and Uppsala parts and the insufficient enrollment of graduates to the postgraduate programmes. The Faculty's proposed remedy was to introduce a BSc degree in Forestry, separate from the MSc programme. It should be offered in Uppsala with the purpose to recruit future doctoral students in Forestry.

The employers reject the idea of a BSc degree with preparation for postgraduate studies as sole purpose, and so does the commission. The commission is in favour of a BSc degree allowing combinations of forestry subjects with courses in agriculture, natural sciences, social sciences or technology. Such a degree does not, however, solve the problem with the insufficient enrollment of graduates from the Faculty of Forestry in postgraduate programmes. According to the commission the MSc programme in Forestry should, like the MSc in engineering, be made an effective combination of professional and science-based education.

The commission's recommendations on the MSc programme in Forestry, which is part of a proposed coordinated action for undergraduate and postgraduate education as well as research, is presented in section 2.3. The distribution of departments and resources between Uppsala and Umeå should be decided on by the Faculty of Forestry.

The *MSc programme in Veterinary Medicine* is, with respect to the cost per student, the number of applicants per study place and the demand from the labour market, very similar to the university programme in Medicine. The cost as well as the minimum requirements for admission in terms of marks and other merits are among the highest in Swedish higher education, and the graduates are very much in demand on the labour market. The examination rate for the MSc programme in Veterinary Medicine is even higher than for graduates in Medicine and is hardly exceeded by any other university education.

The Utrecht team has no objections as to the contents of the MSc programme or its professional and scientific level. According to the team the

veterinary curriculum contains all the subjects required by the EC, and it is also in all other respects compatible with EC guidelines. Weak points are, however, according to the team, that the students study only one subject at a time (the block system), and that the students all follow one uniform programme, without elective subjects or optional programmes.

In the self-evaluation report by the Faculty committee for undergraduate studies these issues are discussed, and obviously the committee is aware of the problems. In the commission's opinion the Faculty should take the analyses and recommendations made by the Utrecht team seriously.

The commission has noticed that in Europe as well as in the United States and Canada a certain specialization within the veterinary curriculum is being accepted by the national bodies which issue authorisation for veterinarians. According to the commission it is important that the Faculty of Veterinary Medicine follows the international development.

The commission also wants to emphasize the team's recommendations on continuing education and its advice that the Faculty should keep itself informed about the on-going discussions and the proposed solutions concerning undergraduate veterinary education in Europe.

The Utrecht team's recommendation to make the curriculum more flexible and include elective subjects, and bring about more integration of subjects, is congruent with the views presented by the students and should be paid attention to in the review of the undergraduate teaching which the Faculty is about to make.

The commission has observed that the staff to student ratio at the Faculty is one of the highest in the European veterinary schools, according to the team, and that the total budget is high for a faculty of its size. The cost per student is about the same as for medical students, whereas other MSc programmes at the SUAS are less expensive than the corresponding university programmes. In order to reduce the cost for veterinary education the Faculty should examine what could be saved by moving the education at Skara to Uppsala. Another reason to concentrate the education to Uppsala is that it would facilitate a certain specialization.

### *Teaching Methods*

The foreign evaluation teams are satisfied with the high degree of motivation for teaching among staff members as well as students. They are, however, dissatisfied with the dominant role of fact-finding and fact-knowledge in the courses and the examination, and they recommend more problem-analysis, synthesis, understanding and integration of courses, together with a different manner of examination.

To some extent issues of teaching and examination are common to all higher education. Those more general pedagogic issues and methods are being dealt with by a commission under the Ministry of Education. It can be



expected that the more general pedagogic issues, also concerning the SUAS, will be discussed in connection with the report by that commission in the beginning of 1992.

SOU 1991:101  
Del 5

The self-evaluations by the Committees for undergraduate studies at the SUAS as well as the opinions and proposals presented by the student representatives show that there is an awareness of how different ways of teaching and examination affect the process of learning and the competence of the graduates. According to the commission more emphasis on basic science as well as on problem-solving, integration and synthesis is needed if the Swedish MSc programmes are to be up to a high European standard. In the commission's opinion, the evaluation teams' observations and advice are most valuable contributions to the committee work going on, or about to start, at the SUAS, aiming at development and improvement of the undergraduate teaching. Local experiences and proposals from the various Committees for undergraduate studies and from student organisations should also be made use of.

### *Internationalisation*

With some astonishment the commission has noticed that the international contacts and the international student exchange in undergraduate education at the SUAS has hardly been affected by the wave of European mobility that has hit the rest of the universities and colleges (under the Ministry of Education) during the last few years.

Undergraduate students at the SUAS may have some contacts with other Nordic countries and occasionally a student has spent a term at a university in the United States, on his or her own initiative. The SUAS has hardly any agreements with universities abroad on student exchange, whereas even the small university colleges under the Ministry of Education have several such agreements.

Nordic cooperation is a tradition for universities and colleges of agriculture and is of great importance at the postgraduate level and in research. After the establishment a couple of years ago of a regular Nordic programme for the exchange of faculty and students the situation for undergraduate education has improved.

The commission recommends that the international contacts and exchange be developed at the SUAS, including participation in the ERASMUS programme. The SUAS Faculties should find partner faculties abroad, preferably in Europe, and make agreements with them on exchange of undergraduate and postgraduate students, and on cooperation in education and research.

According to the commission the MSc programmes should be planned in such a way that the students can spend a term or a year at a foreign university and get credit for it at home. At the universities of technology, for instance, it has for quite some time been a custom to send engineering student abroad for

their last year of study. The SUAS should also, like the other Swedish universities, offer courses in English to foreign students.

SOU 1991:101  
Del 5

The SUAS has given priority to international contacts and cooperation in its long-term plan of 1989. The commission recommends that the efforts be considerably increased.

With closer European and EC contacts, and adjustments to systems and practice in other countries, it can be expected that a grading system will be introduced at the SUAS. The foreign teams have recommended such a change.

### *Dimensioning of Undergraduate Education*

On the request of the commission a study has been made on the occupations and the occupational mobility of SUAS graduates on the labour market, the long-term effects of the present educational capacity of the SUAS, and the labour market demand. According to this study the number of SUAS graduates in gainful employment will increase during the next 10-15 years, then level off and decrease.

The number of graduates in natural sciences will begin to decrease earlier, just after the year 2000, which means that the total number of graduates with a natural science or a SUAS degree, who are to a certain extent interchangeable on the labour market, will decrease from the year 2005. Engineers will, however, continue to increase considerably until 2020.

The commission recommends that a long-term strategy be formulated for the dimensioning of the SUAS undergraduate programmes together with the planning authorities for the natural science undergraduate programmes.

In a short-term perspective the number of new entrants to the MSc programme in Forestry should be increased. The number of graduates in Forestry in gainful employment will remain unchanged for a long time - for each new graduate there will be a senior forester retiring. To ensure an increased enrollment of foresters in postgraduate education more graduates are needed. The intake to the MSc programme in Landscape Architecture should also be increased in the next few years.

A large surplus of people with a short SUAS education, the 1-2 year programmes, is expected in the near future, which is a reason to reduce the present intake. A review of the shorter programmes is, however, going on at the SUAS.

### *Postgraduate Education*

The foreign evaluation teams have made observations and recommendations on postgraduate education which are worth listening to. The commission has also made use of some recently presented enquiries to doctoral students and



supervisors, and initiated a comparative statistical study including other faculties at Swedish universities.

The material available indicates that the quality of the theses does not seem to be very much of a problem, whereas the recruitment of doctoral students and the running of the postgraduate programmes call for actions of various kinds.

As regards time of study and examination rate the SUAS does not differ significantly from similar faculties at other universities. The time of study for a Doctoral Degree in Agriculture or Forestry is about the same as for a Doctor of Technology and somewhat shorter than for a Ph D in Natural Sciences. A Doctoral Degree in Veterinary Medicine takes about the same time as a Degree in Medicine. The net study time is in general close to four years, which is the official norm.

Even if the examination rates at the SUAS hardly are lower than at other comparable faculties they are too low in the commission's opinion. Generally, the examination rates in postgraduate education in Sweden are low, according to the commission. In the SUAS case the various enquiries and other material indicate that higher examination rates can be attained by a better financial support and by a more adequate organisation of the postgraduate studies. According to the commission the SUAS should continue to give priority to posts for doctoral students, which up to now has meant certain improvements.

A more even and well-balanced distribution of doctoral students among departments and fields should be aimed at, and the doctoral training should be made more effective. A more well-structured supervision is needed in many cases as well as a more organised postgraduate teaching. Doctoral training should to a larger extent be organised in research groups. In order to facilitate the formation of such research groups, and also to increase the offer of postgraduate courses, there should be increased cooperation within the SUAS and also with other universities in Sweden and abroad. The Nordic cooperation, which has long traditions, could be made more use of, particularly by departments with very few doctoral students. Foreign partner faculties could in a similar way supplement the resources at the SUAS. Study visits to foreign universities or research institutes should be regarded as a regular part of a postgraduate education.

The commission also recommends that the overall responsibility for postgraduate teaching be transferred from the University level (the Council for Postgraduate Studies) to the faculty level. According to the Helsinki team it is probable that a more active management of postgraduate studies could be achieved at the faculty level. Postgraduate courses common to all SUAS students could be planned and implemented as a cooperative effort by the faculty level councils.

Within all the SUAS faculties recurrent education has to be given a more prominent role. In the commission's opinion this is one of the most reliable predictions that can be made today.

At the SUAS recurrent education is being arranged mainly as commissioned education, paid for by various customers. Most of it consists of short courses, lasting one or a couple of days. Some longer courses have, however, recently been developed. According to the commission there should be a supply of single courses at the SUAS in the same way as at the other universities, i.e. such courses should be part of the University's regular teaching and funded over the normal budget. The other universities offer single courses in various disciplines and fields, lasting from a couple of weeks to a term or a year. Such courses could be developed at the SUAS in connection with the planning of broad BSc programmes.

Distance education appears to be an appropriate mode to reach professionals within various fields, needing further education. The distance courses developed at the Faculty of Forestry, which are part-time, longer courses, starting this academic year, are good examples, according to the commission. So is the recently developed distance course in food science. They should be followed by similar further training courses within various fields.

In the commission's opinion the Faculties should have the major responsibility as to further training programmes and contents of courses. The course and conference unit within the University's Research Information Centre could handle the practical arrangements and should continue to be in charge of the short courses and conference activities.

## 2.6 Research Information and Extension

Research information and extension are large and important activities at the SUAS, mainly due to the University's leading role in Swedish agricultural research.

According to the commission research information is part of the departments' normal tasks and activities. As the researchers create new knowledge they have a responsibility of making it available to the research community as well as to customers and users of various kinds. According to the Higher Education Act the Swedish higher education institutions are obliged to furnish information on research results. There should be a close connection between research and the supply of information about its results.

The commission recommends that each SUAS Faculty designates an information and extension coordinator, who under the dean is responsible for making the results of the Faculty's research available to the practical sector. The task to maintain contacts with farmers' organisations, industry and society at large, to encourage researchers to write extension level material and to distribute it should lie upon the Faculties.



The present Research Information Centre should be responsible for common university functions within its field, for instance publishing but also other tasks that can benefit from being jointly organised.

The commission recommends that the present staff category at the SUAS occupied only with research information and extension activities be better integrated into the university research. These people are in most cases very qualified, with a Ph D and research experience of their own. In the present system they have no career prospects at the SUAS. In the commission's opinion the system practised at some United States universities with part-time extension tasks and part-time research is a more appropriate way of dealing with research information and extension. Accordingly, the commission recommends that a similar model be introduced at the SUAS, enabling the extension staff to pursue their academic careers on a part-time basis.

A better integration of the extension activities into the research of the departments would also facilitate the participation of researchers in such activities. Initiating and producing syntheses of research results, which is very much in demand by various users, should be a major responsibility of the research information coordinators. In this work cooperation between departments within different faculties is sometimes needed, and it should be organised by the deans and the coordinators.

## 2.7 Activities for Developing Countries

The SUAS has been deeply involved in the Swedish assistance programmes for developing countries and has played an important part in the building up of competence at the Swedish International Development Authority (SIDA). At the SUAS there is an International Rural Development Centre, established to coordinate the contribution and participation from the University and to run programmes on a contract basis with the SIDA.

The responsibility and funds for the build-up of competence in Sweden and in developing countries lies, however, with another government agency, the Swedish Agency for Research Cooperation with Developing Countries (SAREC).

In the commission's opinion the cooperation between SIDA and SAREC should be developed in order to coordinate the building up of competence and long-term assistance programmes within important fields such as environment and production issues, use of land and other natural resources. The two agencies could also make joint efforts in supporting assistance from the SUAS in building up agricultural universities or colleges in developing countries. Funds for such purposes could of course be transferred directly to the SUAS, in that case as a reallocation of funds for international assistance.

According to the commission the SUAS should adapt to the present needs and demands from the SIDA, i.e. an increased involvement of the departments and experts in various fields and a more limited function of the International



Rural Development Centre. To bring the SUAS more in line with the actual demand the Faculties should take more responsibility for the participation in international assistance programmes. In the cases where two or more Faculties are involved they should coordinate their efforts, with or without the help of the Centre. The main function of the Centre should be to act as an intermediary in contacts and practical issues, and its experience of work with developing countries should be made use of. Its present size should be reduced.

## 2.8 Relations to Various Partners and Customers

### *Other universities*

The most extensive and well developed university cooperation in which the SUAS participates takes place at the Biomedical Centre (BMC) in Uppsala. The largest part of the BMC belongs to the University of Uppsala, where the Faculties of Medicine, Pharmacy and Natural Sciences are involved. The SUAS share of activities and cost is about 15 %.

When the College of Veterinary Medicine was moved from Stockholm during the 1970s to become a Faculty of the SUAS a long and well established cooperation with the Karolinska Institute was cut off. In Uppsala the Faculty of Veterinary Medicine has developed contacts and a close cooperation with the Faculty of Medicine, and also with the Faculty of Pharmacy, at the University of Uppsala, mainly at the BMC. Other faculties and departments are also engaged in research cooperation at the BMC, and there are many indications that the standard of the research at the centre is very high.

At the University of Uppsala, which is by far the most important university partner to the SUAS, the attitude is in favour of increased cooperation. One example is ecology in connection with the transfer being made to the SUAS of some R&D units from the National Swedish Board for Environment Protection. Technology is another field of common interest.

Due to the location of the SUAS Faculties and departments there is also cooperation with the Universities of Lund and Umeå. The Faculty of Technology at the University of Lund is also an important partner to the Uppsala part of the SUAS, because of the present division of labour within food science, with food technology research in Lund.

According to the commission there are favourable conditions for a further development of the cooperation with the Universities of Uppsala, Lund and Umeå, and the SUAS should make use of them. The commission sees advantages also in increased cooperation with other Swedish as well as foreign universities.

According to the commission's study based on the Science Citation Index material and international scientific co-publication it appears that the SUAS researchers are very much concentrated on cooperation with colleagues in the Nordic countries and the United States. Scientific cooperation with other European researchers is less frequent. Probably the increased activity of



SUAS researchers in various EC programmes will change the present networks. In the commission's opinion the SUAS should not just wait for that to happen but start developing contacts and cooperation. The SUAS should "get European". As already mentioned, European partner faculties is one way to build up cooperation in undergraduate and postgraduate education as well as in research.

### *Partners in the Private Sector*

The foreign evaluation teams have commented on the close relationship between the SUAS Faculties (and their predecessors) and the traditional agricultural society, the forest industry and others users, and the SUAS' importance for the development of the sector. According to the Wageningen team there is a low threshold for informal contact, and the SUAS is easily accessible to interested people from the outside.

After having interviewed a number of representatives of associations, organisation etc within agriculture, and food industry, the commission's impression is that the SUAS is regarded as a most valuable asset. There is a strong wish to maintain and develop the SUAS competence on primary production. There is cooperation going on also with other universities, with food technology at Lund as an example. The Faculties of Agriculture and Veterinary Medicine have, however, a key position in generating relevant knowledge and making it available to various users. There are extensive contacts and close cooperation of many kinds with the SUAS. The private agricultural sector has confidence in the University and wishes to continue to use it for commissioned research. There are no plans to start private R&D institutes.

The commission's impression is that the private agricultural sector accepts the reallocation of funds at the Faculty of Agriculture during the past ten years from applied research and development work to basic and strategic research. There is an understanding of the importance of basic and strategic research. Even if the applied research and development work is the users' first concern they are aware of the connection to basic research.

As mentioned in section 2.2 private funding of applied research and experiments has increased during the 1980s. In principle, the Association of Swedish Farmers is willing to continue to take on, successively, a greater responsibility for applied research and experimental work. A problem is, however, that the forthcoming change in Sweden from a regulated market-system with subsidies and administered internal prices to a market-regulated agriculture will entail a substantial loss of R&D funding. In the present system part of the income is channeled to R&D. Approximately 80 Million SEK will disappear in the next few years. According to the commission the change into a market-regulated system is not unique for Sweden and should not alter the division of labour between the SUAS and the private sector in funding of

R&D. In the commission's opinion an appropriate technical solution should be sought, for instance in the models presently used in Denmark or Germany.

Also the private forestry sector considers the Faculty of Forestry an important source of knowledge and a valuable asset. Here, however, criticism is expressed as to the reduction of basic SUAS allocations to traditional forestry fields, described in section 2.2 As can be seen in section 2.4 the commission shares the view of the forest industry and the forest owners and recommends that the present Swedish research policy be changed in order to avoid the unfortunate effects produced at the Faculty of Forestry, and probably at other university faculties as well.

According to the commission it is most important that the position of the SUAS and its Faculty of Forestry as a "sector university" for forestry be restored as a substantial support for development. The commission wants to emphasize that the present broad competence of the Faculty of Forestry, including environmental aspects, is an asset to the private forestry sector, which it also is aware of.

As to other aspects of SUAS research activities and to MSc programmes the views from the private sector of agriculture and forestry are in many respects similar to the observations and recommendations made by the foreign evaluation teams. The forestry sector regards, for instance, the geographical splitting up of the Faculty of Forestry as a great problem.

In agriculture, food science and forestry various associations and organisations within the private sector have, at the commission's initiative, presented their research priorities for the next ten-year period. As mentioned in section 2.4 this material should be paid attention to in the forthcoming revision of the Faculties' long-term plans for research and in identifying themes for university-run research programmes.

### *Government Agencies, Research Councils etc*

The SUAS also has a network with various government agencies. According to the National Swedish Board for Environment Protection the SUAS responded at an early stage to the demand for environmental research, and the Board considers the cooperation and activities satisfactory. Also with the Council of Forestry and Agricultural Research the SUAS relations appear to be all right, even if the Council would like a stronger scientific leadership at the SUAS.

The Royal Academy of Forestry and Agriculture emphasizes the importance of dynamic development, broad competence and future-orientation for a "sector university" like the SUAS, views that the commission very much agrees on. In fact, they summarize the main intentions behind the commission's recommendation on various changes at the SUAS.

The Board of Forestry and the former Board of Agriculture (now replaced by another agency) have to the commission presented their views on research and education at the SUAS as well as their opinion on the research informa-



tion and extension activities. The Boards' part of the research information and advice to farmers, forest owners etc has to operate in close connection with the SUAS extension activities. The views presented by the Boards have been paid attention to in the commission's recommendations (more emphasis on departments and researchers in research information, the role of the extension staff, for instance).

SOU 1991:101

Del 5

## 2.9 Organisation and Governance

### *The SUAS Merger*

According to the commission, the motives for establishing in 1977 a joint higher education institution for Agriculture, Veterinary Medicine and Forestry are still valid. The increasing attention paid to environmental issues and to biological production and production processes during the 1980s, and the connection between environmental aspects of agriculture and forestry, have reinforced rather than weakened the arguments brought forward some ten years ago. The same can be said about food science and the need for cooperation between the Faculties of Agriculture and Veterinary Medicine.

In order to successfully pursue its mission the SUAS has to be an integrated institution and its research, education, and other activities have to be of good quality according to international standards and useful to the sector. The sector perspective is an integral part of the SUAS concept. Even if agriculture and forestry have been made more explicitly part of a wider context during the 1980s, and many of the former objectives have been adapted to new overall priorities, there is still a sector orientation behind all the University's activities. An important advantage of a joint higher education institution for agriculture and forestry was to make better use of actual and potential common ground and common competence and to benefit from cooperation between related fields.

The commission's review shows that the SUAS has been successful in carrying out its mission in many respects. The long-term plans presented have been relevant as well as future-oriented, and they have covered the whole SUAS field of responsibility. The R&D development in agriculture and forestry during the 1980s came to a large extent to focus on the long-term objectives and areas of priority presented by the SUAS. The research activities are in line with the international development and are, according to various indicators, of good quality and volume. A close cooperation has been developed in animal science between the Faculties of Agriculture and Veterinary Medicine, and cooperation between other fields and in different forms has also taken place.

A great deal remains to be done, however, in order to benefit from potential joint efforts and fruitful cooperation. Examples are plant science and soil science, and there are many others as well. The merger in 1977 was intended to prepare the ground for increased cooperation among the faculties.



According to the evaluation teams, cooperation within each faculty is also insufficient.

A number of factors and circumstances have complicated or obstructed the close cooperation and integration aimed at by the SUAS merger. The geographic distribution and splitting up of faculties and departments is according to the evaluation teams a serious obstacle. The Faculty of Forestry is affected by this, in particular, with at present three locations of the MSc programme and four of research.

According to the commission, regional policy should not be the main consideration in decisions about the SUAS activities. Objectives and quality as to education and research should come first. As mentioned in section 2.3 the commission recommends that the Faculty of Forestry be concentrated to two centres, Uppsala and Umeå.

Compared to the Faculty of Forestry the Faculty of Agriculture has an easier situation with the present two centres. Also within the Faculty of Agriculture it is, however, important to improve the contacts and the cooperation between Uppsala and Alnarp and to emphasize the common identity. In the commission's opinion the proposal sometimes discussed to locate the MSc in Horticulture entirely to Alnarp is not compatible with the SUAS basic concept of cooperation and joint use of resources. The importance of research on the science base of agriculture, and the high priority given to the development of this field in the United States and elsewhere, is a strong argument for joint efforts and not for splitting up basic research in Sweden.

In order to make better use of the cooperation potential created by the establishment of the SUAS the analyses and recommendations by the foreign evaluation teams, as well as the self-evaluations and other material from the Faculties, should be paid attention to by the SUAS at all levels.

The commission does not recommend that the SUAS be transferred from the Ministry of Agriculture to the Ministry of Education. The advantages of being kept together with the agriculture and forestry sector seem to outweigh the disadvantage of being separated from the other universities.

### *Organisation and Administration*

There is a large number of committees, councils and other bodies at different levels at the SUAS. At the same time the expenditure on administration is lower than in most Swedish universities, according to a recent study. Obviously the merger has led to rationalisation and reduction of cost. In particular, the cost at the central University level at the SUAS is low, compared with other universities.

The central University level has been active in initiating common activities and cooperation at the SUAS. Even if some satisfactory results and effects have been achieved that way it has probably meant less pressure, and less incentives, at the levels more directly concerned. In the commission's opinion



there are good reasons to listen to the advice, unanimously given by the foreign evaluation teams, to give the Faculty level more responsibility and make it a more active and forceful intermediary level. According to the teams the distribution of competencies between University, Faculties and Departments should be changed in such a way that the faculty can operate as a strong and coherent unit. SOU 1991:101  
Del 5

The commission recommends that the present large number of committees, councils etc be replaced by three levels in the SUAS organisation: University level, Faculty level and Department level, all with the authority to set up the committees and advisory councils they find necessary.

On the University level overall decisions should be made on long-term planning, distribution of funds among the faculties, major issues and common affairs.

The present University Board should be replaced by a smaller and more efficient Board. The majority should be external members, as is the case in Swedish universities. They should not, however, represent various organisations and interests but be of use to the SUAS. Together they should cover the important aspects of the SUAS field of responsibility. At the University level there should also be an Academic Council, acting as a support to the University Board and to the Vice-chancellor in scientific matters. This Council should also be a forum for coordination and cooperation among the Faculties and with the University level. It should consist of the Vice-chancellor, the University director, the deans and, in addition, a couple of researchers from the University.

The present Planning and Budgeting Committees should be replaced by Faculty Boards. The Boards should be made responsible for planning, implementation and results in undergraduate education, postgraduate education and research as well as in research information and extension, further training programmes and participation in international assistance programmes.

In the same way as the University Board the Faculty Boards should be small and efficient. The contacts and cooperation with associations and organisations within the sector of agriculture and forestry should, in connection with the reduction of the size of the University Board, be developed at the faculty level. Inspired by the Helsinki team the commission recommends that Advisory Councils be established by each Faculty Board, with a majority of representatives of external partners and interested parties.

According to the commission the present Faculty of Agriculture, which is large and heterogenous, should be divided into two, one for Agriculture and one for Horticulture and Landscape Planning. The teaching and research in Horticulture and Landscape Architecture need more of their own profile and identity in the SUAS structure.

As mentioned earlier the present programme committees should be replaced by thematic programme committees.

The commission shares the view of the evaluation teams on the department level. The departments should be more actively involved in the planning of

undergraduate teaching and in research cooperation. Departments can have a large degree of autonomy, but they should submit to faculty decisions and policies when common tasks and goals are concerned, as the Utrecht team puts it.

The departments are affected by the proposed dividing up of the Faculty of Agriculture. Some departments should be common for the new faculties.

### *Direction and Governance*

The model of management by objectives practised at the SUAS, with long-term plans for development as one instrument, is adequate in the commission's opinion. It should, however, be further developed. More involvement and engagement by the departments is needed, mainly within the Faculties of Agriculture and Veterinary Medicine. Furthermore, the long-term plans need to be more of a setting of priorities than of an inventory.

As the commission has emphasized in section 2.4 a large share of external research funding means that the Universities and Faculties are left with very limited influence on the research they perform. The commission's recommendations on university-run programmes as an alternative to programmes run by research councils and mission-oriented agencies would increase the faculties' influence. Consequently, the Government and Parliament can to a larger extent direct the activities at the SUAS by policy and priority declarations. At the same time the unfortunate effects of the present system could be avoided.

The most important potential for change and development is, however, the staff members and the students at the University. The commission's recommendations aim at stimulating and activating the resources within the SUAS for renewal and progress. The advice from the evaluation teams is a good help, but it is also necessary to follow up and evaluate regularly what has been achieved. The recommendation to find partner faculties and to follow the international development within undergraduate teaching is also meant as an incentive to make comparisons and get inspiration. As part of a more intensified international cooperation it can bring out more of the dynamics in the SUAS and facilitate adaptation to changes in the surrounding world and in the SUAS role.





# Statens offentliga utredningar 1991

## Kronologisk förteckning

1. Flykting- och immigrationspolitiken. A.
2. Finansiell tillsyn. Fi.
3. Statens roll vid främjande av export. UD.
4. Miljölagstiftningen i framtiden. M.
5. Miljölagstiftningen i framtiden. Bilagedel. Sekretariatets kartläggning och analys. M.
6. Utvärdering av SBU. Statens Beredning för Utvärdering av medicinsk metodik. S.
7. Sportslig och ekonomisk utveckling inom trav- och galoppsporten. Fi.
8. Beskattning av kraftföretag. Fi
9. Lokala sjukförsäkringsregister. S.
10. Affärstiderna. C.
11. Affärstiderna. Bilagedel. C.
12. Ungdom och makt. C.
13. Spelreglerna på arbetsmarknaden. A.
14. Den regionala bil- och körkortsadministrationen. K.
15. Informationens roll som handlingsunderlag - styrning och ekonomi. S.
16. Gemensamma regler - lagstiftning, klassifikationer och informationsteknologi. S.
17. Forskning och utveckling - epidemiologi, kvalitets-säkring och Spris utvecklingsprojekt. S.
18. Informationsstruktur för hälso- och sjukvården - en utvecklingsprocess. S.
19. Storstadens trafiksystem. Överenskommelser om trafik och miljö i Stockholms- Göteborgs- och Malmöregionerna. K.
20. Kapitalkostnader inom försvaret. Nya former för finansiell styrning. Fö.
21. Personregistrering inom arbetslivs-, forsknings- och massmedieområdena, m.m. Ju.
22. Översyn av lagstiftningen om träfiberråvara. I.
23. Ett nytt BFR - Byggforskningen på 90-talet. Bo.
24. Visst går det an! Del 1, 2 och 3. C.
25. Frikommunförsöket. Erfarenheter av försöken med en friare nämndorganisation. C.
26. Kommunala entreprenader. Vad är möjligt? En analys av rättsläget och det statliga regelverkets roll. C.
27. Kapitalavkastningen i bytesbalansen. Tre expertrapporter. Fi.
28. Konkurrensen i Sverige - en kartläggning av konkurrensförhållandena i 61 branscher. Del 1 och 2. C.
29. Periodiska hälsoundersökningar i vissa statliga, kommunala och landstingskommunala anställningar. C.
30. Särskolan - en primärkommunal skola. U.
31. Statens arkivdepåer. En utvecklingsplan till år 2000. U.
32. Naturvårdsverkets uppgifter och organisation. M.
33. Branden på Sally Albatross. Den 9-12 januari 1990. Fö.
34. HIV-smittade - ersättning för ideell skada. Ju.
35. Några frågor i anslutning till en arbetsgivarperiod inom sjukpenningförsäkringen. S.
36. Ny kunskap och förnyelse. C.
37. Räkna med miljön! Förslag till natur- och miljöräkenskaper. Fi.
38. Räkna med miljön! Förslag till natur- och miljöräkenskaper. Bilagedel. Fi.
39. Säkrare förare. K.
40. Marknadsanpassade service- och stabsfunktioner - ny organisation av stödet till myndigheter och regeringskansli. C.
41. Marknadsanpassade service- och stabsfunktioner - ny organisation av stödet till myndigheter och regeringskansli. Bilagedel. C.
42. Aborterade foster, m.m. S.
43. Den framtida länsbostadsnämnden. Bo.
44. Examination som kvalitetskontroll i högskolan. U.
45. Påföljdsfrågor. Frigivning från anstalt, m.m. Ju.
46. Handikapp, Valfärd, Rättvisa. S.
47. På väg - exempel på förändringsarbeten inom verksamheter för psykiskt störda. S.
48. Bistånd genom internationella organisationer. UD.
49. Bistånd genom internationella organisationer. Annex 1. Det multilaterala biståndets organisationer. UD.
50. Bistånd genom internationella organisationer. Annex 2. Sverige och u-länderna i FN - en återblick. UD.
51. Bistånd genom internationella organisationer. Annex 3. Särstudier. UD.
52. Alkoholbeskattningen. Fi.
53. Forskning och teknik för flyget. Fö.
54. Skola - skolbarnsomsorg - en helhet. U.
55. Sveriges nationalrapport till FNs konferens om miljö och utveckling - UNCED 1992. M.
56. Kompetensutveckling - en utmaning. A.
57. Arbetslöshetsförsäkringen - finansierings-systemet. A.
58. Ett nytt turistråd. I.
59. Konkurrens för ökad välfärd. Del 1. Konkurrens för ökad välfärd. Del 2. Konkurrens för ökad välfärd. Bilagor. C.
60. Olika men ändå lika. Om invandrarungdomar i det mångkulturella Sverige. C.
61. Statens bostadskreditnämnd - organisation och dimensionering. Bo.
62. Vissa särskilda frågor beträffande integritets-skyddet på ADB-området. Ju.



# Statens offentliga utredningar 1991

## Kronologisk förteckning

93. Tillsynen över hälso- och sjukvården. S.
94. Att förvalta kulturmiljöer. U.
95. Ett samordnat vuxenstudiestöd. U.
96. Hemslöjd i samverkan. I.
97. Samhall i går, i dag, i morgon. A.
98. Frikommunförsöket. Erfarenheter av försöksverksamheten med avsteg från statlig reglering m.m. C.
99. Frikommunförsöket. Erfarenheter av försöksverksamheten med avsteg från statlig reglering m.m. Särskild bilaga. C.
0. Ombudsman för barn och ungdom. S.
1. Teaterns kostnadsutveckling 1975-1990 med särskilda studier av Operan, Dramaten och Riksteatern. U.
2. En kreativ studiemiljö - högskolebiblioteket som pedagogisk resurs. U.
3. Vänersjöfarten. K.
4. Krediter för utveckling. UD.
5. Organiserad rasism. A.
6. Miljön och förpackningarna. M.
7. Miljön och förpackningarna. Livscykelanalyser för förpackningsmaterial - beräkning av miljöbelastning. Bilaga. M.
8. Krav på förändring - synpunkter från psykiskt störda och anhöriga. S.
9. Det framtida trafiksäkerhetsarbetet. K.
0. Kommunalt partistöd. C.
1. Fastighetsleasing. Ju.
2. Drivkrafter för produktivitet och välbstånd. I.
3. FoU för industriell utveckling. Svensk kollektivforskning 1991. I.
4. Smuggling och tullbedrägeri. Fi.
5. Historiska arrenden - förslag till friköpslag. Ju.
6. Ny hyreslag. Bo.
7. Yrkesofficerarnas pensionsålder och åldersstruktur. Fö.
8. Stöd och samordning kring psykiskt störda - ett kunskapsunderlag. S.
9. Försäkringsrörelse i förändring 1. Fi.
0. Konkurrensneutral energibeskattnig. Fi.
1. Forskning och utveckling för totalförsvaret. Kartläggning och probleminventering. Fö.
2. Rätt till bostad - om psykiskt stördas boende. S.
3. El från biobränslen. Det industriella utvecklingsarbetet. N.
4. ELSU 91. Förslag till omfattning, organisation och finansiering av det svenska elsäkerhetsarbetet. N.
5. Översyn av lagstiftningen på kärnenergiområdet. M.
6. Lantmäteriutbildningar i Luleå och Lund. Bo.
97. En väg till delaktighet och inflytande - tolk för döva, dövblinda, vuxendöva, hörselskadade och talskadade. S.
98. Kommunal ekonomi i samhällsekonomisk balans - statsbidrag för ökat handlingsutrymme och nya samarbetsformer. Fi.
99. Statistiken inom livsmedelssektorn - förslag till förändringar. Jo.
100. Neutral företagsbeskattnig. Fi.
101. Landskap Näring Kunskap, del 1 - 5. Jo.

# Statens offentliga utredningar 1991

## Systematisk förteckning

---

### Justitiedepartementet

Personregistrering inom arbetslivs-, forsknings- och massmedieområdena, m.m. [21]  
HIV-smittade - ersättning för ideell skada. [34]  
Påföljdsfrågor. Frigivning från anstalt, m.m. [45]  
Vissa särskilda frågor beträffande integritetsskyddet på ADB-området. [62]  
Fastighetsleasing. [81]  
Historiska arrenden - förslag till friköpslag. [85]

### Utrikesdepartementet

Statens roll vid främjande av export. [3]  
Bistånd genom internationella organisationer. [48]  
Bistånd genom internationella organisationer. Annex 1. Det multilaterala biståndets organisationer. [49]  
Bistånd genom internationella organisationer. Annex 2. Sverige och u-länderna i FN - en återblick. [50]  
Bistånd genom internationella organisationer. Annex 3. Särstudier. [51]  
Krediter för utveckling. [74]

### Försvarsdepartementet

Kapitalkostnader inom försvaret. Nya former för finansiell styrning. [20]  
Branden på Sally Albatross. Den 9-12 januari 1990. [33]  
Forskning och teknik för flyget. [53]  
Yrkesofficerarnas pensionsålder och åldersstruktur. [87]  
Forskning och utveckling för totalförsvaret.  
Kartläggning och probleminventering. [91]

### Socialdepartementet

Utvärdering av SBU. Statens Beredning för Utvärdering av medicinsk metodik. [6]  
Lokala sjukförsäkringsregister [9]  
Informationens roll som handlingsunderlag - styrning och ekonomi. [15].  
Gemensamma regler - lagstiftning, klassifikationer och informationsteknologi. [16].  
Forskning och utveckling - epidemiologi, kvalitetssäkring och Spris utvecklingsprojekt. [17].  
Informationsstruktur för hälso- och sjukvården - en utvecklingsprocess. [18].  
Några frågor i anslutning till en arbetsgivarperiod inom sjukpenningförsäkringen. [35]  
Aborterade foster, m.m. [42]  
Handikapp, Valfärd, Rättvisa. [46]

På väg - exempel på förändringsarbeten inom verksamheter för psykiskt störda. [47]  
Tillsynen över hälso- och sjukvården. [63]  
Ombudsman för barn och ungdom. [70]  
Krav på förändring - synpunkter från psykiskt störda och anhöriga. [78]  
Stöd och samordning kring psykiskt störda - ett kunskapsunderlag. [88]  
Rätt till bostad - om psykiskt stördas boende. [92]  
En väg till delaktighet och inflytande - tolk för döva, dövblinda, vuxendöva, hörselskadade och talskadade. [97]

### Kommunikationsdepartementet

Den regionala bil- och körkortsadministrationen. [14]  
Storstadens trafiksystem. Överenskommelser om trafik och miljö i Stockholms- Göteborgs- och Malmö-regionerna. [19]  
Säkrare förare [39]  
Vänersjöfarten [73]  
Det framtida trafiksäkerhetsarbetet. [79]

### Finansdepartementet

Finansiell tillsyn. [2]  
Sportslig och ekonomisk utveckling inom trav- och galoppporten. [7]  
Beskattningsavtal med kraftföretag. [8]  
Kapitalavkastningen i bytesbalansen.  
Tre expertrapporter. [27]  
Räkna med miljön! Förslag till natur- och miljö-räkenskaper. [37]  
Räkna med miljön! Förslag till natur- och miljö-räkenskaper. Bilagedel. [38]  
Alkoholbeskattningsen. [52]  
Smuggling och tullbedrägeri. [84]  
Försäkringsrörelse i förändring 1. [89]  
Konkurrensneutral energibeskattnings. [90]  
Kommunal ekonomi i samhällsekonomska balans - statsbidrag för ökat handlingsutrymme och nya samarbetsformer. [98]  
Neutral företagsbeskattnings. [100]

### Utbildningsdepartementet

Särskolan - en primärkommunal skola. [30]  
Statens arkivdepåer. En utvecklingsplan till år 2000. [31]  
Examination som kvalitetskontroll i högskolan. [44]  
Skola - skolbarnsomsorg - en helhet. [54]  
Att förvalta kulturmiljöer. [64]



# Statens offentliga utredningar 1991

## Systematisk förteckning

---

Ett samordnat vuxenstudiestöd. [65]  
Teaterns kostnadsutveckling 1975-1990  
med särskilda studier av Operan, Dramaten  
och Riksteatern. [71]  
En kreativ studiemiljö - högskolebiblioteket som  
pedagogisk resurs. [72]

### Landsbruksdepartementet

Statistiken inom livsmedelssektorn - förslag till  
förändringar. [99]  
Landskap Näring Kunskap, del 1 - 5. [101]

### Arbetsmarknadsdepartementet

Ulykting- och immigrationspolitiken. [1]  
Regelreglerna på arbetsmarknaden. [13]  
Kompetensutveckling - en utmaning. [56]  
Arbetslöshetsförsäkringen - finansieringssystemet. [57]  
Arbetsmarknaden i går, i dag, i morgon. [67]  
Organiserad rasism. [75]

### Bostadsdepartementet

Ett nytt BFR - Byggforskningen på 90-talet. [23]  
Den framtida länsbostadsnämnden. [43]  
Statens bostadskreditnämnd - organisation och  
dimensionering. [61]  
Ny hyreslag. [86]  
Antmäteriutbildningar i Luleå och Lund. [96]

### Industridepartementet

Översyn av lagstiftningen om träfiberråvara. [22]  
Ett nytt turistråd. [58]  
Förslagslämning i samverkan [66]  
Drivkrafter för produktivitet och välbefinnande. [82]  
Förslag till lag om för industriell utveckling. Svensk kollektiv-  
forskning 1991. [83]

### Näringsdepartementet

Enligt förslag från biobränslen. Det industriella utvecklingsarbetet.  
[93]  
SOU 91. Förslag till omfattning, organisation och  
finansiering av det svenska elsäkerhetsarbetet. [94]

### Civildepartementet

Äffärstiderna. [10]  
Äffärstiderna. Bilagedel. [11]  
Förmyndighet och makt. [12]

Visst går det an! Del 1, 2 och 3. [24]  
Frikommunförsöket. Erfarenheter av försöken med  
en friare nämndorganisation. [25]  
Kommunala entreprenader. Vad är möjligt? En analys  
av rättsläget och det statliga regelverkets roll. [26]  
Konkurrensen i Sverige - en kartläggning av konkur-  
rensförhållandena i 61 branscher. Del 1 och 2. [28]  
Periodiska hälsoundersökningar i vissa statliga, kom-  
munala och landstingskommunala anställningar. [29]  
Ny kunskap och förnyelse. [36]  
Marknadsanpassade service- och stabsfunktioner - ny  
organisation av stödet till myndigheter och rege-  
ringskansli. [40]  
Marknadsanpassade service- och stabsfunktioner - ny  
organisation av stödet till myndigheter och rege-  
ringskansli. Bilagedel. [41]  
Konkurrens för ökad välfärd. Del 1.  
Konkurrens för ökad välfärd. Del 2.  
Konkurrens för ökad välfärd. Bilagor. [59]  
Olika men ändå lika. Om invandrarungdomar i det  
mångkulturella Sverige. [60]  
Frikommunförsöket. Erfarenheter av försöksverk-  
samheten med avsteg från statlig reglering m.m. [68]  
Frikommunförsöket. Erfarenheter av försöksverk-  
samheten med avsteg från statlig reglering m.m.  
Särskild bilaga. [69]  
Kommunalt partistöd. [80]

### Miljödepartementet

Miljölagstiftningen i framtiden. [4]  
Miljölagstiftningen i framtiden. Bilagedel.  
Sekretariatets kartläggning och analys. [5]  
Naturvårdsverkets uppgifter och organisation. [32]  
Sveriges nationalrapport till FN:s konferens om miljö  
och utveckling - UNCED 1992. [55]  
Miljön och förpackningarna. [76]  
Miljön och förpackningarna. Livscykelanalyser  
för förpackningsmaterial - beräkning av  
miljöbelastning. Bilaga. [77]  
Översyn av lagstiftningen på kärnenergiområdet. [95]























ALLMÄNNA FÖRLAGET

BESTÄLLNINGAR: ALLMÄNNA FÖRLAGET, KUNDTJÄNST, 106 47 STOCKHOLM,  
TEL: 08-739 96 30, FAX: 08-739 95 48.  
INFORMATIONSBOKHANDELN, MALMTORGSGATAN 5 (VID BRUNKEBERGSTORG), STOCKHOLM.

ISBN 91-38-10977-8  
ISSN 0375-250X