

More Co-operation - Better Research?

NORDFOU ROAD & TRAFFIC, A SMALL-SCALE PROGRAMME FOR EXTENSIVE AND SYSTEMATIC CO-OPERATION

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1. The need for closer co-operation

An efficient and appropriate road network requires a continuous development of materials, methods, systems and work processes. Therefore, the planning, construction and operation of roads have to be made increasingly effective and continuously be adapted to ever-changing conditions. The results of road and transport research are a vital and necessary part for the road administrations in order to ensure these objectives.

Research and development in all areas, including transport, is increasingly becoming an international task. The EU framework programmes, for instance, have for many years, left their mark on European research and a number of important initiatives have been launched over the past few years. One of the latest EU initiatives is the establishment of the ERA-NET structure to strengthen further cross-border co-operation among national research programmes. Under this programme, the *ERA-NET Transport* has been established as a strategic cooperation between the European Ministries of Transport. Furthermore, the *ERA-NET Road* has been established between the national road authorities, focusing on the initiation and coordination of research relating to the management and operation of the strategic road network.

On a Nordic level, the road administrations have for several years been co-operating in many research and development projects and programs. Often, national budgets leave little room for extensive research activities; in most of the Nordic countries, there are only a limited number of people involved with road and traffic research, and the research budget is fairly small. This in turn implies that it is highly important for researchers to be able to work together on joint projects, thereby creating valuable new knowledge on a larger scale, than would otherwise have been possible.

2. The case of “NordFoU road&traffic”: A small-scale research programme

In December 2004, the Nordic road administrations formally launched a new administrative R&D platform, *NordFoU*, to facilitate research projects on an Inter-Nordic basis. The idea was twofold: to get more research value for money and to secure, that the relatively small research units in the Nordic countries could gain access to a larger market and thereby strengthen their financial possibilities to maintain their specialization.

The NordFoU initiative aims especially at strengthening, promoting and organizing Nordic research co-operation in a more formalized manner. The NordFoU co-operative platform rests on an overall framework agreement, signed by the Director Generals of the Nordic Road administrations; the so-

called "NordFoU road&traffic" agreement. The agreement states that the overall aim is "*to strengthen scientific and technological contributions*" within the administrations' sphere of activity.

The agreement notes that "*extensive research and development already takes place within the administrative bodies of the individual Road Authorities. In the opinion of the Road Authorities, this work is important and should continue to be developed. At the same time, however, the Nordic Road Authorities consider that there is a large potential area of research and development that can be utilised by joint contributions and concrete cooperation between countries. Cooperation can take many different forms and involve two or more countries depending on what is considered to be appropriate to the project*"./1/

2.1. The NordFoU organisational structure

Within NordFoU a preparatory and decision-making structure for initiating, implementing and monitoring projects have been defined. It consists of two separate bodies:

- **The Nordic Preparatory Group:** the group is responsible for identifying - and, in many cases, inspiring - joint projects and overseeing the development of project and agreement proposals into a form acceptable for the participating countries. The preparatory group meets 3 times a year and maintains a catalogue of project ideas, monitoring the development of all objects in the catalogue as well as potential ideas. The members of the preparatory group are senior r&d co-ordinators for the respective administrations and thus well placed to assess research needs and links between research programs.
- **The Nordic Steering Group:** the group is formed by the Directors responsible for research and development and meets annually to decide on the directions of further action and organisation and to monitor progress.

The Nordic Groups have annually rotating chairmanships; preparatory work for meetings, hosting, and conducting of meetings is undertaken by the road administration that will chair the meeting. The chairing country is also responsible for appointing a NordFoU-secretary, responsible for handling all practical matters with regards to setting up meetings, monitoring progress in on-going projects and report to the preparatory group on upcoming ideas for new projects.

2.2. The NordFoU co-operation paradigm

The NordFoU framework agreement states, that it will be appropriate for the Inter-Nordic research collaboration to develop a co-operation paradigm that lay down the principles for future co-operation can be brought about and carried out. The two key principles to be observed in the NordFoU paradigm are pooled funding and appointing one of the participating road administrations as project manager.

In the NordFoU context, pooled funding means that the road administration appointed as project manager will handle all financing, invoicing the other participating countries for their part, make all contracts with researchers and consultants, regardless of country of origin, and oversee all outputs. This procedure differs from the more traditional model, where each country involved has financed its own part of the project, generally by contracting researchers and consultants in that country, and the results will then eventually be summed up as a co-operative effort.

3. Reaching a joint research programme

The NordFoU preparatory group has defined a so-called procedural model, which comprises both co-ordinating procedures for identifying common research needs and collecting new project ideas – as well as management procedures for the practical day to day work with the joint projects – i.e. ensuring the relevant document templates, contractual support, etc.

The entire process - from agreeing on the go-ahead of a certain project to the finalization and dissemination of project results - is described in this procedural model. This model comprises most of the internal administrative processes in NordFoU, and has been the center of attention and intense discussion when trying to establish a rational and fairly non-bureaucratic way of cooperation. The overall idea has been to “keep it simple”. The aim is of course to ensure the most effective way of carrying out joint research projects.

3.1. Strategic research needs: The basis for joint projects

It is always a difficult task to find the common ground, when trying to identify common strategic research needs across the national research programmes. Even so, the NordFoU preparatory group decided, that it was necessary to do an inventory of the national road administrations' R&D programmes. The objective was to develop a set of common strategic research needs, which would form the strategic basis for collecting project ideas. The NordFoU Steering Group thus adopted the following seven strategic research needs:

- Personal safety related to heavy goods traffic and accessibility
- Life Cycle Costs analysis
- Development of new tendering procedures
- Noise reducing measures
- Effects of climate changes – consequences and measures
- Accessibility, predictability and reliability
- Environmental Life Cycle Assessment in construction and maintenance

These common strategic themes reflect areas within the road administrations, where there is a need for new knowledge in order to meet the future challenges of the road infrastructure. Researchers within the road administrations are invited to forward project ideas, which cover these themes. On the NordFoU web-site (www.nordfou.org) it is possible to fill out a form and mail it directly to the NordFoU secretary. This is a relatively new application and so far we need to draw more attention to this way of reaching new project ideas.

The NordFoU preparatory group also embraced the idea of using existing co-operative network, such as the Nordic Road Association etc. in order to ensure the collection of as many project ideas as possible.

3.2. Funding the NordFoU programme

In formulating the NordFoU vej&trafik agreement, it was underlined that this kind of co-operation does not imply creating a new source of funds outside of national project funding. Instead, it is a new way to allocate existing funds in an efficient way. By putting the national funds in a common pot, researchers would have an opportunity for more research than would otherwise have been possible.

It is a clear principle within the framework of NordFoU, that third-party funding – for instance from a national research institution – is not possible, since such institutions could not be managed within the agreement between the road administrations.

4. Results and experiences so far

NordFoU has the advantage of being a relatively small-scale research programme with only a limited number of participating countries. The projects are fairly small in comparison with the ERA-NET projects. Still programme management is a demanding task.

4.1. NordFoU projects

One of the requirements of a NordFoU projects is, that it has to be directly applicable into the work of the road administrations, and from the outset, there has to be an identified recipient of the project results. This in turn would secure, that NordFoU projects will contribute to the work of the road administrations in a highly effective way.

The first project agreement was signed in December 2004 for the *Nord 2000 Road Engineering Model*. This project continued the work on the Nordic noise mapping and prediction model, Nord 2000, in order to implement a validated engineering model for road noise. Denmark, Sweden, Finland, Norway and Iceland participated, with the Danish Road Directorate carrying project responsibility. The project started in January 2004 and ended March 31, 2006. The Danish Road Directorate contracted a group of consultants, led by a Danish company, but including also Swedish, Norwegian and Finnish partners, for the project. The resulting model where immediately implemented in Denmark and Norway.

In December 2005 the second project agreement where finalised. The *ETSI project for bridge life cycle optimisation* aims at developing recommendations about relevant tools for bridge life cycle optimisation in a form directly applicable to practical problems and decision-making support, for instance to choose the proper bridge type or material considering long term effects. Sweden, Norway and Finland participate, and the Finnish Road Administration is responsible for the project. The group of consultants is led by a Finnish university department. The project awaits a revised project plan for stages two and three of the project.

In February 2006, the agreement was signed for the project *Disturbance from lighting during road works at night*, dealing with the safety of both the drivers passing the work zone in the dark and the road workers, particularly on roads with high traffic volumes. The focus of the project is on illumination: requirements on the intensity of yellow flashing lights, work light illumination and shielding, other traffic control devices and handling wet pavement reflection. The Swedish National Road Administration is project responsible; Denmark, Finland and Norway also participate.

The agreement for the project *Pavement Performance Models* was signed in early 2007. The project shall enable existing models in Pavement Management systems to be upgraded, through an improved description of the development in road surface conditions as a function of time, traffic volumes and the climate. This will in turn contribute to a more efficient planning tool within the road administrations, and in the long run, economic benefits can be incurred. The Norwegian National Road Administration is project leader; Denmark, Sweden and Iceland also participate.

A variety of new project ideas are currently being discussed, and the Preparatory group is searching for interested parties within their respective organisations.

4.2. Promoting the NordFoU initiative

In the experience of the Preparatory Group, a large effort has to be put into promoting a new research programme. The objectives of the programme have to be clear and understandable and researchers have to expect, that participating within the NordFoU programme will actually bring

about some benefits, that would otherwise have been harder to harvest if projects were carried out on a purely national basis.

4.3. Ensuring efficient project management

Experience has shown that a lack of communication and information between the Preparatory Group and project leaders can lead to projects being derailed from the approved project plan. This will in turn lead to the Preparatory Group having to intervene in the ongoing project management. In order to avoid this, there is a continuously need for evaluating management procedures. It has been decided, that in 2008 the NordFoU coordination and management procedures will thus undergo a detailed evaluation from an outside consultancy.

4.4. Legal barriers

The Nordic countries are alike in many ways, and this holds true even with respect to legislative principles. Even so, the question of acquiring consultancy services to R&D projects is handled differently. In Norway for instance, all public acquisitions - also when it comes to R&D services – must be put out for tendering. This will affect the NordFoU projects where project management rests with the Norwegian Road Administration. Issues regarding how to manage differences in national legal principles are dealt with in the NordFoU co-operative paradigm.

4.5. Systematic reporting and communication

The NordFoU Steering Group has required there be presented both an annual progress report, describing the general progress of the NordFoU programme as well as in the joint research projects. Furthermore an annual action report must be presented, that describes the expected activities in the coming year.

Regarding project management, there have been developed a set of set requirements for the dissemination of project result, which every project has to comply with. It is a critical part of any project, and a very important way of informing our colleagues within the Nordic road administrations and elsewhere, the benefits we have been able to obtain.

5. Conclusion

In 2008, the NordFoU research initiative is entering its 5th year, and a variety of projects have been initiated - One project has been completed, whilst four others are being carried out at the moment. At the same time ideas for new projects are being discussed at every meeting. Experiences so far have proved that a formalized systematic co-operation is indeed no easy task; it demands an ongoing attention to the effectiveness of programme management procedures, as well as a continuous dialog with researchers, in order to keep the projects on the trail and ensure an effective and beneficial outcome for the countries involved. It is a sort of “learning-by-doing”, where both past failures and successes is used as valuable experiences, when deciding on future research initiatives.

References

/1/ Vegagerdin, Tiehallinto, Statens vegvesen, Vägverket, Vejdirektoratet: Rammaaftale for faellesnordiske forskningsprojekter, 10.12.2004.