



Internal Functioning of RCN

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Reports in the evaluation of the Research Council of Norway

Synthesis report

Erik Arnold, Stefan Kuhlman and Barend van der Meulen, **A Singular Council? Evaluation of the Research Council of Norway**, Brighton: Technopolis, 2001

Background reports

1. The Research Council of Norway and its different funding mechanisms: The experiences and views of researchers in universities, colleges and institutes.

Background report No 1 in the evaluation of the Research Council of Norway
Magnus Guldbrandsen, NIFU

2. Bibliometric Analysis of Norwegian Research Activities.

Background report No 2 in the evaluation of the Research Council of Norway
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3. RCN in the Dynamics of Research: A Scientist's Perspective.

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15. RCN: Needs and Strategy.

Background report No 15 in the evaluation of the Research Council of Norway
Erik Arnold, Technopolis

16. RCN International Context.

Background report No 16 in the evaluation of the Research Council of Norway
Sarah Teather and Erik Arnold, Technopolis

Summary

The Research Council of Norway was established in 1993 in order to improve the co-ordination between funding of basic and applied research, the co-ordination between the different sectors and disciplines, and to develop and co-ordinate national research policy. However, the formation of a unified Council has not been accompanied by a similar rationalisation within the structure of the Ministries or within the structure of the research community itself. Historically, sectoral ministries channelled funds for infrastructure and research through sectoral research councils, which in turn allocated these funds to sectoral research institutes. We have found that in many respects this situation remains unchanged except for the fact that the sectoral research councils have been turned into sectoral ‘divisions’ within a unified council.

Furthermore, whilst Norway is a small country, there remains a political will to ensure that all ‘parties’ within the research community are fully represented. This political imperative means that RCN must support, and be seen to be supporting, all scientific disciplines and industrial sectors. In some cases, the Council must also strive to maintain an appropriate balance in terms of demographic considerations, ensuring that geographical regions, peoples and genders are adequately represented.

RCN has not been able to overcome the constraints imposed by high levels of fragmentation both upstream and downstream, and the requirement to function in a largely ‘non-discriminatory’ fashion. These constraints have diluted the extent to which RCN can provide a lead in terms of science policy, they explain why it has difficulty translating its own Divisional strategies into real actions and achievements, and why attempts at effective integration and cooperation across Divisional boundaries appear weak. However, RCN continues to strive to develop and improve the way it functions within the limitations imposed by external forces.

Certain aspects of the budgeting process, in particular the situation whereby individual research divisions ‘compete’ with each other on an annual basis for additional funding, has historically undermined parallel efforts to improve cooperation and co-ordination within RCN. Recent moves to improve this situation - through improved ‘top-down’ direction as to where additional funding should be deployed coupled with explicit requests to the Research Divisions to come forward with joint proposals - appear sensible.

Earmarking of research funding for specific research fields is common practice within all research funding agencies. However, the process as organised within the Norwegian research funding system appears, at least in some cases, to go down to a level of specificity not witnessed elsewhere. Of more concern is that earmarking sometimes relates to specific institutes, geographical regions, and so on. This can create problems for research administration and cause strategic (relevance) and quality considerations to be disrupted by political concerns.

As things stand, the idea of a research programme as a ‘strategic, goal-oriented, co-ordinated and time-limited research effort to generate new knowledge or competence within a defined field (subject or branch)’ remains underdeveloped. We found little evidence to suggest that there are clear supporting arguments as to why specific efforts (programmes) were needed in specific areas, nor why the scale and duration of

the effort is appropriate to the programme goals. Programme areas and allocations tend to follow historical, sectoral lines, and are only weakly related to the current strategies or research policies.

Programme definition and implementation procedures do not vary by ‘type’ of programme, but rather according to the personal preferences of the responsible Research Division or programme board. Whilst there is scope for employing a range of different processes in the ways in which programmes and other categories of funding are managed, such processes should vary according to the nature of the initiative, not the personal preferences of those who operate them. This aspect of RCN’s functioning urgently requires overhaul and rationalisation. Clearly defined appraisal and selection procedures, optimised according to the defining features of the programme to which they relate would help to reduce administrative complexity and improve transparency of decision-making processes.

The role of ‘relevance’ considerations in the appraisal and selection of projects is not clearly formulated. In some cases relevance assessments relate to a proposal’s ‘fit’ within a programme or prioritised area rather than to its ability to contribute to a programme’s objectives. The influence of Ministerial earmarking in the selection process is also unclear, leaving RCN open to the challenge that certain selection criteria are not made explicit to researchers before they apply.

Timescales between the submission of proposals and decisions being relayed to applicants are excessively long. The operation of a fixed deadline for applications in mid-June, coupled with a budgetary process in which finances are not agreed until December, leads to a situation whereby applicants wait some 7-8 months for a decision. This seems excessively long by international standards, and should be addressed.

As with project appraisal and selection processes, programme planning strategies and processes vary by Division, with little logical structure behind such differences. There is scope for improved utilisation of standard programme planning tools that have good precedence in other national research councils.

There are several initiatives within the Council to improve strategic planning at both the Divisional and Council levels. Currently, every division seems to follow its own approach, although each conducts some consultation with the other divisions. While differences in strategies are justified given the differences in the (implicit) missions of the divisions, current practice implies that there is a risk of diverging strategies. This is reinforced because the Strategic Planning Division appears not to be involved in coordinating and supporting strategy development at the divisional level. We believe there is scope for a more coordinated approach to strategy development, involving better sharing of good practices across the organisation.

Although each of the strategic processes that the Research Divisions develop have some value they also seem to rely very much on consultation with the usual bodies and people with whom RCN interacts. So, the people that are involved in these processes are also the ones with which RCN interacts to run the procedures, especially the Ministries and the Programme Boards. Opening up the consultative processes to include greater input from international experts and competence centres would bring

different perspectives and competencies to bear and help to strengthen RCN's strategic planning and functioning.

Evaluation practices are not well developed within RCN. Some positive examples exist and a sensible evaluation strategy has been developed but has not been fully implemented. Given the vital role played by evaluation in delivering systematic feedback and learning, this aspect of RCN's internal functioning needs urgently to be strengthened.

Biotechnology has developed as a model in RCN for coordinating cross-divisional areas. Although clear progress has been made in this area in terms of strategy deployment and co-ordination, it is not evident that the same model can be used for other areas. RCN now has prioritised areas - Marine, ICT, Medicine and Health, Energy and Environment - which are arguably in need of more concrete and shorter term forms of strategy making and implementation, which will require more top-down co-ordination.

Certain cross-divisional differences remain as the logical consequence of the different roles of the Research Divisions in their different sectors. Because of the good working relations between staff from the divisions these differences are no longer a significant obstacle for RCN to function as one organisation. However, scope remains for improving organisational learning and cross-divisional co-ordination.

There are clear tensions between the six Research Divisions and the Strategic Planning Division. At best, some of the Research Divisions seek to avoid complying with the requests and efforts of the Strategic Planning Division, and at worst they seek to undermine them. RCN needs to readdress the relationship between the Research Divisions and the Strategic Planning Division, if there is to be improved co-ordination and cooperation between these two parties

The administrative workload carried by RCN is substantial, and it is not clear that the human resources available are sufficient (in terms of both number and capability) to carry out all of the necessary functions to a high quality. Recent efforts to control administrative load by rationalising the number of programmes (units) to be managed and increasing the average size of projects are helpful, but can not be carried on indefinitely. If RCN is to continue to face staff cuts, it will have to find ways to supplement its administrative resource or reduce its overall workload.

Heavy workloads create additional problems within RCN, which also need to be addressed. If people struggle to find time to perform all of their day to day functions, it is difficult to cause them to undertake new or additional tasks, and aspects such as training tend to suffer. If RCN is to improve its processes, increase organisational learning, and become more strategic and results driven, it will require a certain amount of (additional) time and space in order to do this. Current workloads leave little or no time to develop and improve.

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• **Introduction**

This report presents findings in relation to the ‘internal functioning’ component of the evaluation of the Research Council of Norway (RCN). In performing this part of the study, we have investigated internal functioning in relation to three distinct aspects of RCN’s activities.

The first relates to RCN’s responsibilities as a research funding body. This encompasses activities including the planning of budgets for research activities, issuing calls for proposals, appraising and selecting proposals, monitoring and reporting on projects and results, and evaluating policies and programmes in order to understand achievements and guide future activities.

The second aspect relates to RCN’s role as a strategic organisation, both in relation to the research activities it supports and in relation to the wider national and international research systems within which it operates. We are therefore interested not only in the processes by which RCN develops research programmes and other interventions, but it how it develops its own role and position within the national innovation system.

The third aspect relates to processes aimed at optimising the council as an organisation through co-ordination, standardisation, implementation of best practices, reduction of bureaucracy, and so on. Some of these tasks are not related to RCN as a research council (like the personnel policies in their broader sense, and the development of time management systems). Others have a direct impact on RCN’s performance as a research council, like co-ordination of cross-divisional research areas.

Our report begins by describing the internal structures around which RCN organises itself and its activities, and looks at the resources it has at its disposal. We then go on to look at various aspects of internal functioning against the three main blocks of RCN activity outlined above. Finally, we present some conclusions and recommendations.

Note - All figures quoted are for the year 2000 unless otherwise specified.

• Organisational Structures and Resources

This section provides some background information on the structures by which RCN organises itself and its various activities. We begin by looking at the internal structures around which RCN's personnel are grouped, and the different roles and functions of each. We look at the system of Boards and Committees that contribute to RCN's various activities, and touch briefly on the (external) environment within which it operates.

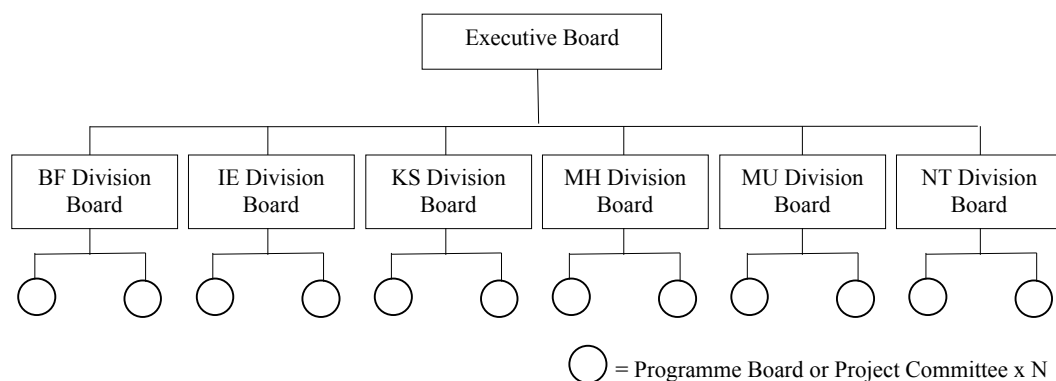
This section also details the resources available to RCN and how they are distributed across the organisation and its activities.

• Board Structures

Three levels of Boards (or Committees) govern RCN. The various boards and committees generally comprise a mix of representatives drawn from the Norwegian research community and users, with RCN staff acting as secretariat. The Ministries are represented in some programme steering committees.

Exhibit 1 below presents an organisation chart of the Board/Committee structure of RCN.

Exhibit 1 Board Structure of RCN



As is shown by **Exhibit 1** above, there are three ‘levels’ of Boards in operation within RCN.

The ‘Executive Board’ manages and oversees the operation of the entire Council. The Government appoints the members of the Executive Board, who in turn appoint the Director General of RCN and the six Division Boards.

The second layer comprises six ‘Division Boards’¹. These correspond to the six research divisions identified in the preceding section, and each has primary responsibility for setting and overseeing strategy and steering the research funding

¹ Also known as Divisional Boards

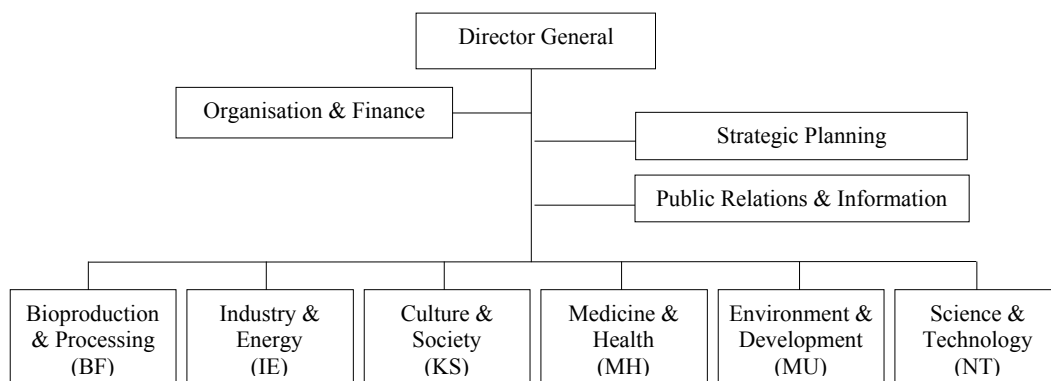
activities operated by their corresponding research division. Formally, these Division Boards take decisions about funding individual projects. In practice, they normally approve decisions taken at the third steering level. In the KS division, the Division Board has formally delegated funding decisions to the third level.

The third layer comprises a large number (~115) of ‘programme’ boards or committees, which have responsibility for overseeing the implementation of programmes and other categories of research funding. These boards often have a strong role in setting priorities within programmes and in making funding decisions for individual research projects.

• Internal Structures

The Research Council of Norway employs some 280 personnel and is internally organised into nine Divisions, each with a distinct set of roles and responsibilities. Six of these Divisions are responsible primarily for the administration of scientific research activities, whilst the other three perform ‘horizontal’ administrative functions on behalf of the Council as a whole. **Exhibit 2** below presents an organisation chart of the internal structure of RCN.

Exhibit 2 Internal Structure of RCN



The Director General and his staff manage the day to day administration of the Council, and function as the secretariat to the Executive Board.

The Organisation and Finance Division performs a range of functions pertaining to the internal administration of the Council. Responsibilities include financial control and accounting, personnel management, maintenance of facilities equipment including IT systems, continuous internal audit, secretary to the Executive Board, property management and organisational development.

The Strategic Planning Division assists the Executive Board and the Director General with research policy, internal planning, budgeting and other aspects of RCN’s information systems and functions.

The Public Relations and Information Division manage the production of documents, press and public information. Its responsibilities include activities intended to promote the public understanding of science.

The six 'research' divisions each have primary responsibility for defining research policies and programmes within their respective spheres of responsibility, procuring and managing research portfolios and reporting results. The separation of responsibilities between the six research divisions is decided by the Executive Board and organised primarily according to disciplinary and/or sectoral boundaries, although these distinctions are blurred at many points within the internal structure. IE manages industry-led, applied research activities, unless these fall within the areas of fisheries and agriculture, in which case BF oversees them. All of the Divisions (with the exception of IE) fund researcher-led basic and applied research (IE only funds applied) though NT funds basic research activities which underpin the disciplines covered by all of the other divisions.

Each of the Divisions within RCN is headed by a Divisional Director and sub-divided into a number of different Departments (between 2 and 5 per Division). As with the Divisions themselves, departmental boundaries are, in most cases, organised around disciplinary or sectoral distinctions. However, NT (which has responsibility for basic research funding that underpins most² sectors and disciplines) is organised into departments according to different funding modes.

• External Structures

The various functions performed by the Council have to be performed within an arena of multiple actors representing a diverse set of interests. It is almost impossible to describe why RCN's functions and processes are as they are without recourse to the external structures with which RCN has to interface and which it has to serve. The complexity of these external systems has a direct impact upon the internal functioning of the Research Council and our findings therefore have to be understood within this context.

Three distinct groups of actors are significant, in that RCN has to deal with each on a regular basis and each has a certain interest and influence in how the Council operates.

First, there are the various Ministries, which represent sectoral and societal interests. In Norway, all ministries are responsible for funding research related to their sectoral concerns. Fifteen ministries fund research at least partly through RCN. The defence ministry is the only one not to do so. General research is the responsibility of the education ministry (KUF). The Ministries provide the budgets that RCN allocates and with which RCN operates, and also play a role in the development of research policies within the sectors for which they are responsible. In many cases the Ministries are also users of a significant portion of the research funded through RCN, and as such occupy the role of customer.

Second, there are the various institutes and universities that conduct research within Norway, and that get at least part of their funding directly from RCN. Core funding for many, but not all, institutes is channelled through the Council but in most cases individual researchers have to apply for funding on a competitive basis. The research base therefore has a strong interest in the policies and practices of the

² KS and MH have responsibility for funding basic research relating to their sectors and disciplines

Council as they can impact directly on the direction and prospects of their own organisations.

Finally, Norwegian industry also has an interest, directly where it participates in user-controlled projects, or indirectly as the beneficiary of knowledge, research results and human capabilities developed through the research system.

These diverse interests also imply different relationships with RCN. Depending on the actor and the specific context of the relationships these actors can be clients, funders, governors, stakeholders, partners, and so on. For RCN these diverse interests are of particular importance, since each group occupies a position of power and influence over the Council and its operations. In looking at aspects of internal functioning, the first two groups of stakeholders are of particular significance.

- **Ministries**

RCN acts on behalf of a large number of Ministries, based on the responsibilities and needs of the latter as regards public-sector research within Norway. The Ministries have an interest in

- 1 The development of research policies and instruments
- 2 The acquisition (from central Government) of budgets for research activities
- 3 The allocation of these budgets in order to meet their own information needs
- 4 The allocation of these budgets in order to meet their own policy responsibilities towards certain sectors and/or disciplines
- 5 The allocation of these budgets in order to meet their responsibilities for maintaining institutes and research capabilities under their control

All of the above activities depend, at least to some degree, on interaction between the Ministry and RCN. Each Ministry therefore has a direct interest in RCN policy and practice, and will seek, to a lesser or greater degree, to direct and influence the ways in which RCN behaves and the research funding decisions that are taken.

Exhibit 3 below sets out the numbers of Ministries with which each of the six Research Divisions has to co-ordinate.

Exhibit 3 – Ministries Funding Research through RCN in 2000, by Division

Division	Number of Ministries
Bioproduction and Processing (BF)	5
Industry & Energy (IE)	8
Culture and Society (KS)	14
Medicine and Health (MH)	7
Environment and Development (MU)	10
Science and Technology (NT)	5

The sheer number of Ministries, but perhaps more importantly, the nature of the relationships, has huge consequences for the workload of each Division, and the constraints within which each has to operate. This issue is dealt with in our account of research management in the following section.

- **Institutes, Colleges and Universities**

Each of RCN's research Divisions deals on a regular basis with research-active university departments, colleges and institutes. These interactions relate not only to RCN's role as a funder of research projects, but also to the assessment and development of capabilities, and in some cases the provision of core funding. As major stakeholders in the national research system, research-active organisations have to be consulted on a regular basis, and may work directly with RCN via membership on various Boards and Committees dealing with programme development and project-level funding.

As with the Ministries, the number of research-active organisations towards which each Research Division has special responsibilities impacts directly upon relative workloads, and the ways in which processes have to operate.

- **Resources**

RCN employed 283 Full Time Equivalent (FTE) staff in 2000, compared to around 340 in 1993. There has been a general trend of reducing numbers of staff (in absolute terms) over the past 8 years. Cuts have occurred at all points in the organisation.

The Research Divisions employ a small number of additional programme management resource in order to support their research management activities. This practice has been followed since the formation of the Council, and is not, as far as we can tell, being used to 'replace' permanent employees that are lost as a result of cutbacks.

In addition to permanent staff and external programme managers, the Research Divisions utilise the services of a large number of people employed on Programme Boards, the Division Boards and other Committees. The services of external peers (national and international) are also employed to assist with the process of appraising research proposals. In most cases, remuneration is made to these persons, with the resources being drawn from R&D budgets rather than from RCN's central administrative budget.

RCN has an annual allocation of some 170 MNOK to cover all administrative costs associated with the operation of the Council and its activities. This is set against a total R&D budget of just over 3 BNOK. As indicated above, certain 'administrative' costs are funded directly from the R&D budget, such as payments made to members of boards and committees, external peers, external programme co-ordinators, and so on. Adjusted administrative costs are therefore closer to 270 MNOK per annum, as set against a total R&D spend of 2.9 BNOK. As a result, it appears that around 8.5% of RCN's total spend is taken up with administrative costs and the remainder goes directly to the research community in the form of funding.

- **Research Management**

The provision of financial support to researchers to support research projects is the primary function of RCN, at least in terms of the amount of human resource devoted to it by the six research divisions.

This chapter looks at research management processes within RCN, and covers the annual budgeting process, research-funding modes, programme formation, project acquisition, and monitoring and reporting procedures.

- **The Budgeting Process**

The budgeting process is dealt with here in detail because it has important consequences for how research funding is organised and distributed, and contributes significantly to the amount of management effort tied up with research administration. A flow chart of the entire process is shown in **Exhibit 4** below.

The process has three phases

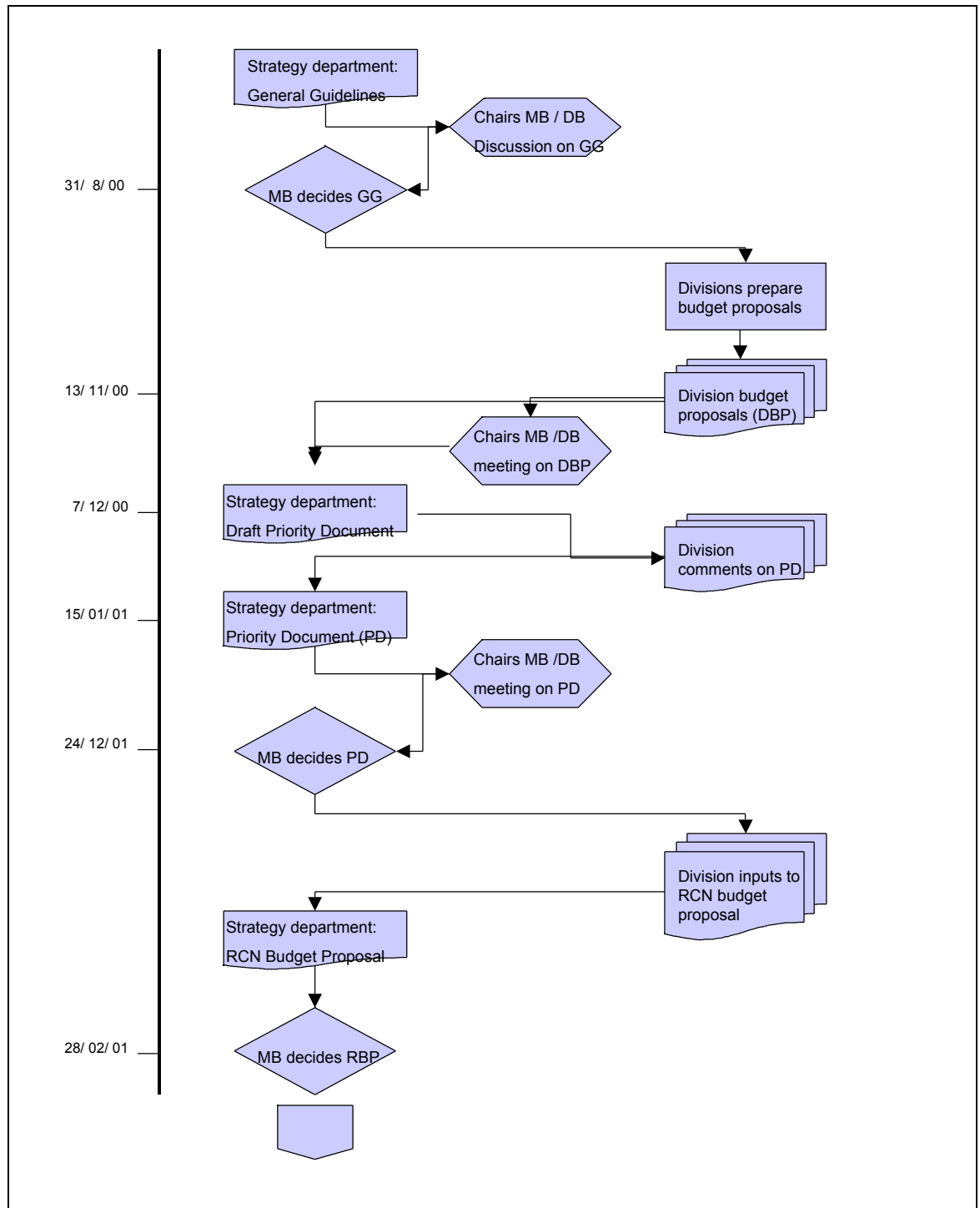
- 1 Preparation of a budget proposal (*Budsjett forslag*) to the government by the research council, which is based on proposals of the Research Divisions to RCN's Executive Board
- 2 Budget allocation of the government to the research council via budget propositions to the Parliament (*Storting*) and budget letters (*Tildelingsbrev*) to the research council of each of the ministries
- 3 Internal distribution of the budget to the divisions and staff departments (*Budsjettfordeling*) and within each of the divisions to the funding schemes and programmes resulting in a rather detailed budget at the end of January

Each phase is dealt with in turn below.

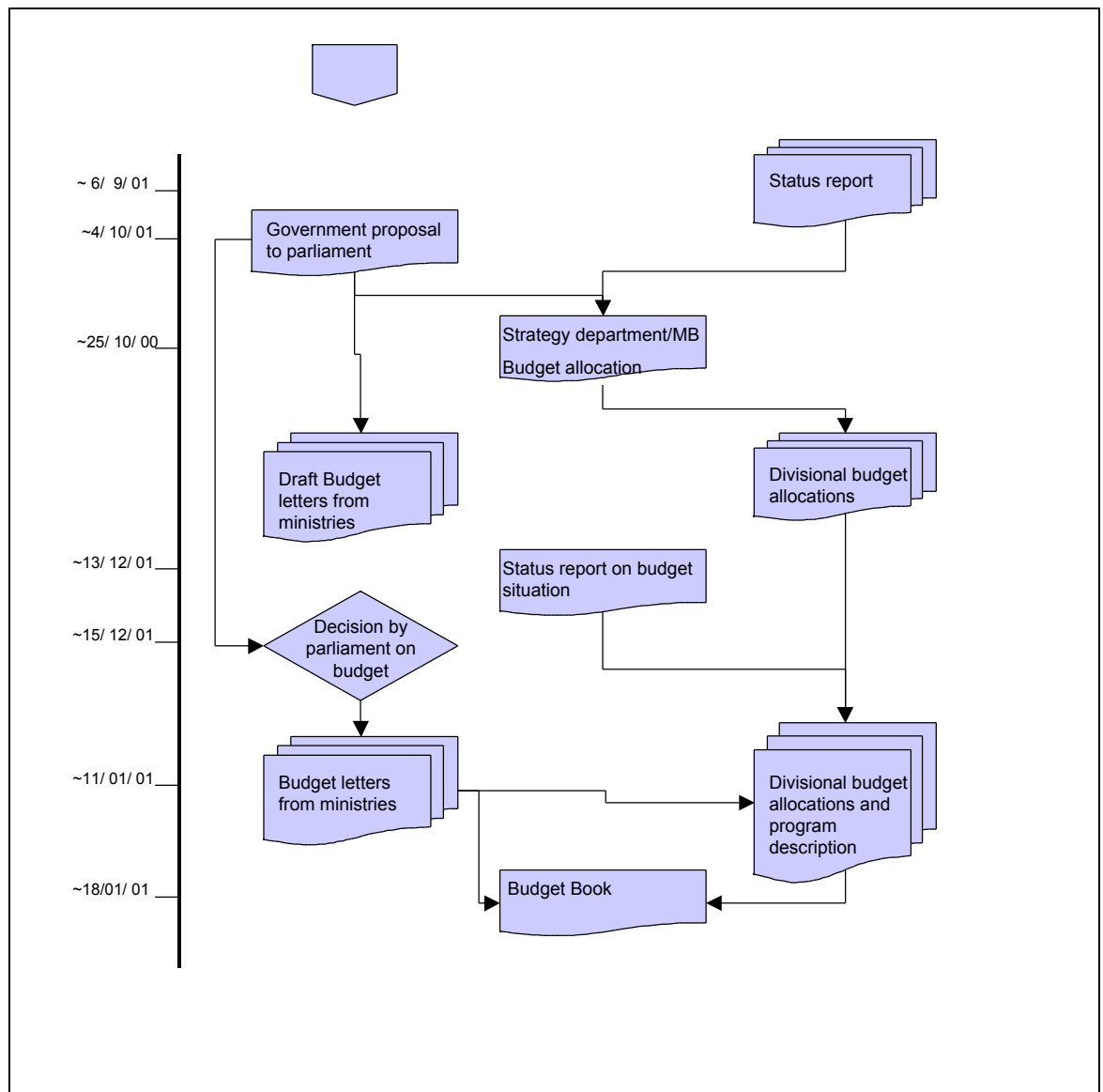
- **Phase 1 – Preparation of the Budget Proposal**

The formal process for budget year x starts in autumn year x-2 with the preparation by the Strategic Planning Division of General Guidelines (*Generelle styringssignaler*) for divisional budget proposals. Historically, the guidelines only contained instructions concerning the format for divisional budgets, and indicated a number of 'scenarios' to be followed (e.g. 5% decrease, 0%, 10% growth). Over the last couple of years the guidelines have included greater 'top-down' direction as to the areas that are to be prioritised by RCN within any future budgetary growth. These were set in the research white paper of 1999.

Exhibit 4 – Flow Chart of the RCN Budgeting Process



Note – Flow chart continues on following page



The 2002 Guidelines read as the policy ambitions of RCN for the next year and ask the divisions to

- Increase their funding of basic research (*Grunnforskning*)
- Prioritise industry oriented research (*Næringsrettet forskning*)
- Prioritise research in Marine, Information and Communication Technology, Medicine and Health, and Energy and Environment.
- Emphasise Biotechnology
- To allocate funding through larger grants in order to improve quality of research
- To invest in scientific instruments
- To develop policies for scientific recruitment and pay specific attention to the recruitment of women scientists.
- Increase efforts to improve RCN's advisory role on science policy

The General Guidelines are discussed in a meeting of the Divisional Directors and, if there is need for it, commented on by the Division Boards prior to being discussed and formally ratified by the Executive Board.

In response to the General Guidelines each Division prepares a series of draft budget proposals which are submitted to the Strategic Planning Division for consideration by the Executive Board. The Strategic Planning Division aggregates these proposals in a Draft Priority Document. This document is sent to the divisions for comments, is discussed again in a meeting of the chairs of Main and Division Boards before being finalised and sent to the Executive Board for formal approval.

The aggregation of the individual divisional budget proposals into a composite Draft Priority Document is a crucial step in the budgeting process, and one which has historically caused a good deal of friction between the Research Divisions and the Strategic Planning Division. The Strategic Planning Division has responsibility for arbitrating between the sometimes-competing demands of the individual Research Divisions. There are no set formulas for this process of arbitration. The Strategic Planning Division starts with RCN's agreed strategic priorities and propose increases for each of these through the divisional draft proposals. That implies also some distribution to the divisions as some of the priorities are linked to certain divisions. Marine is seen to be mainly an issue for BF, medical research for MH and ICT for NT and IE together. Subsequently, within each budget scenario a further distribution is elaborated which tries to retain the balance within the research council. The priority document also translates for each budget scenario the expected contributions from the six ministries with substantial funding (KUF, NHD, OED, FID, LD and MD), and of the other Ministries in sum. This step is also based on some established relations between a division and one or more Ministries. These elements are completed first, and subsequently more flexible funds are used to complete the specification and secure existing balances.

Some of the Divisions have claimed that through the aggregation of the divisional budget proposals, they are severely restricted in their strategic possibilities in terms of attracting more funding from certain ministries. The Strategic Planning Division restricts competition between the six Research Divisions over budgets from certain Ministries by holding to established division-ministry relations grown out of sectorally organised relationships. There is an opportunity for the divisions to request special funds from their own sectoral Ministries on the basis of expectations of growth over and above the agreed scenarios, but these requests are not automatically included in the Priority Document on the budget proposal. Accepting substantial increases from one Division inevitably restricts the potential for growth across the other Divisions within any budget scenario. Rather than speculating on a substantial increase from a single Ministry (which Government may ultimately reject) the Strategic Planning Division typically tries to safeguard incremental increases across the whole spectrum.

Whilst accepting the process of arbitration as a necessary evil in order to arrive at a combined 'RCN' budget request, some of the Research Divisions feel that the process by which this is conducted is unclear, that the outcome often does not make sense to them. We heard claims that the Draft Priority Document produced by the Strategic Planning Division has in some instances appeared nonsensical in relation to the

priorities agreed at the outset of the process. In some cases, it can also create problems between a Division and its 'parent' Ministry when the aggregated RCN budget request does not reflect increases agreed at the Divisional-Ministry level. Divisions claim that whilst a meeting is held in which they are invited to discuss the draft Priority Document, in reality they have little chance of affecting its content to any material degree.

Once formally ratified by the Executive Board, the Priority Document is used as the basis for building the final budget proposal. Within this proposal the six Research Divisions have to provide a detailed breakdown of funding requests by programme and other funding modes, as well as indicating which funds are being sought from which Ministry. RCN's final budget proposal is sent to KUF (and to the other ministries) before March 1st in year x-1.³

This 'internal' phase of the budgeting process takes around six months to complete, and imposes a substantial administrative load on the six Research Divisions and the Strategic Planning Division. Perhaps the most common complaint is that despite this large effort being taken on an annual basis, the resulting budget proposal that emerges from RCN is often little different from the one that emerged in the previous year, and in the year before that. Small incremental increases can be seen here and there, but for the most part the effort is disproportionate to the result.

Having said this, the six Research Divisions have welcomed recent moves by the Strategic Planning Division to provide greater 'top-down' direction as to where the growth points are likely to come. This has reduced the 'tug of war' element of the budgeting process, where all of the Divisions clamoured for large increases within an uncertain framework.

- **Phase 2 and Phase 3**

In a way the next two phases in the budgeting process are more intensive than the first. They run in parallel and include a lot of formal and informal exchanges between divisions and ministries of which the outcomes are only visible in the final allocation within the budget.

Phase 2 of the budgeting proposal is rather simple from the perspective of RCN. Between March and October in year x-1, KUF and the other Ministries prepare their government budget for year x, which is presented in October year x-1. In November, draft budget letters from the ministries are sent to RCN, which specify the budget and indicate how the funds are to be allocated (earmarking). In December, after parliamentary decision-making, the ministries send their final budget letters to RCN.

Within the budget a distinction is made between general funds (*generelle midler*), special funds (*spesielle midler*), the funds for administration and, for the last two years, the Research Fund. In the definition of RCN, the general funds comprise discipline and sector related budgets (*faglige bevilgninger*) and the institute funding from the six large ministries (KUF, NHD, OED, FID, LD, MD). The special funds

³ To simplify the process, from the budget proposal 2003 the Priority Document will be replaced by budget frames given in General Guidelines and budget frames for the divisions in the preliminary budget that is sent to the Government in December (Store satsninger).

are earmarked allocations for specific programmes, areas, institutes or even projects. These earmarked allocations are sometimes specified at an incredibly detailed level (e.g. down to 100 KNOK). The distinction between general funds and special funds suggests that the former is at the discretion of the RCN to allocate, but earmarks are also often attached to these funds. The budget letter from KUF for 2001, for instance, specifies which part of the funding is meant for which field of research or disciplinary area, and also includes for each of Division specific instructions on the way that the money is spent. Examples of such instructions are shown below

- In 2001, MH and NT should spend at least as much on ‘free projects’ as in 2000
- MH shall give priority to those areas that have no other funding source then the research council
- 2 MNOK of MD funding should be allocated to bilateral polar research between Norway and the US.
- MD shall give the utmost priority to Climate and Ozone research
- NT should spend at least 10 MNOK on scientific instrumentation

In fixed prices (reference year 2000) the general funds have decreased from 2.444 BNOK in 1993 to 2.108 BNOK in 2001, with a slight increase since 1999. Special funds have increased in the same period from 250 MNOK to 474 MNOK. The earmarks in the budget letters and the increase in the special funds reveals that there is a trend to increased specification on the part of the Ministries as to where and how the research funding should be allocated. However, it should be noted sometimes earmarked funding is requested by the Research Divisions in order to ‘protect’ budgetary allocations in certain areas. Non-earmarked general funds are seen as more open to year on year changes (in either direction) so these earmarking requests from RCN are sometimes used in order to protect budgetary share rather than being ‘imposed’ by the Ministries.

Earmarks can also be requested to guarantee that new tasks do not come without money attached to them. One example is where MU obtained earmarked funding of 2 MNOK from KUF for co-operation with the US at Svalbard (the Norwegian research site in the polar region). International collaborations, whilst desirable, are normally financed on a project by project basis in competition with other proposals. As a consequence, long-term international collaborations are difficult to organise (MU has an agreement with Russia for joint work in polar research, but without any guaranteed funding). However, in the case of Svalbard, an earmarked fund was secured for the collaboration (MU had refused to sign any bilateral agreement for collaboration if funding for the collaboration would not be guaranteed).

Exhibit 5 below shows at an aggregated level, the relationships between Ministerial funding and the budgets of the Research Divisions. One other point to note here is that the Research Fund, a new element within RCN’s financial resource, is likely to improve RCN’s ability to implement research policy guidelines and research system objectives through its funding mechanisms. The Research Fund remains under RCN’s own controls, and is therefore not subject to Ministerial earmarking, although RCN does have to meet certain obligations as to how this money is spent.

Exhibit 5 – Ministry Funding of Research Divisions

<i>'000 NOK</i>	BF	IE	KS	MH	MU	NT	TOTAL
KUF	18000		169659	106825	44930	226630	566044
Fondet	37000	4000	29000	28000	19500	42000	159500
NHD	32700	454355	29525	9000	500	349440	875520
FID	200980	2000			5000		207980
OED		100200	5900		11100	63500	180700
LD	99053		9500		9919		118472
MD		22650	6250	2000	80434		111334
Institute funding	139520		67165		85910		292595
Special	28.097	92050	131790	102350	74900	45000	474.187
Other	6900	15000	18050	3000		1200	44150
Total	562250	690255	466839	251175	332193	727770	2512145
Special Funding	<i>Spec BF</i>	<i>Spec IE</i>	<i>Spec KS</i>	<i>Spec MH</i>	<i>Spec MU</i>	<i>Spec NT</i>	
FID	4000						4000
LD	24097		995		5000		30092
MD					8100		8100
SHD		4000	25500	96050			125550
SD		31950	14400	300	1000	20000	67650
KRD		55100	21150	4000			80250
KUF		1000	18000			22000	41000
AAD			19500				19500
BFD			16000		1700		17700
FIN			5475	2000	600		8075
JD			3355				3355
KD			1915		1000		2915
UD			5500		57500	3.000	66000
	28097	92050	131790	102350	74900	45000	474187

In October year x-1, when the government presents its provisional budget proposal, RCN has a fairly clear idea of what the final budget will be and starts phase 3 in parallel to elements of phase 2. At this time the divisions prepare a status report which lists the changes in priorities, reports back on interactions with Ministries concerning the new budget and updates the Division's various policy statements. The Strategic Planning Division uses the governmental proposal to the parliament and the status reports of the Research Divisions to make a first internal allocation of the budget. Most of these allocations are clear and follow directly from RCN's budget proposal. Less than 5% of the total budget is 'unclear' at this point, and Strategic Planning uses this to bridge discrepancies between RCN's budget proposal and the Government's.

The divisions use these first allocations to determine their possibilities to fund research proposals. Most proposals arrive at the general deadline of June 15th and between June and October the Research Divisions run most of their appraisal procedures for projects starting in year x. Proposals are assessed by September in year x-1 and based on these assessments, preliminary funding decisions are made taking into account the margins of the ultimate budget decisions.

In December the Strategic Planning Division produces a Status Report on the budget situation, finalising the budget allocation to the Research Divisions. After parliamentary decision making, the ministries sent their final budget letters to RCN. The divisions use the Status Report and the final allocation letters to finalise budgetary allocations to programmes and other funding modes. The Budgeting process is closed by the end of January with the Budget Book, which integrates the divisional budgets.

- **Implications of the Process**

Despite a reasonably formal structure to the process, and recent improvements notwithstanding, the budgeting process as currently organised creates a number of problems within RCN.

First and foremost, the process acts to maintain the status quo and limits the extent to which the Divisions can act strategically.

Large amounts (~70%) of each year's budgetary allocations are already committed to ongoing projects, and the bulk of the remainder is, in most cases, tied up in commitments to ongoing programmes, or is earmarked to be spent in certain ways. RCN has little freedom to take decisions as to where best it should apply research funds in order to meet its (RCN-level or Divisional-level) policy objectives. Medicine and health research provides a good example. This area is prioritised in RCN's and the Government's current policy agendas. However, Norwegian spending falls well short of many of Norway's European counterparts. MH's current low starting point coupled with relatively small proportionate year-on-year increases (10-15%) means that it may take decades before Norwegian research spending in this area is brought up to international levels. In its 2000 budgetary proposal, MH requested a 47% increase (some 90 MNOK) in funding over the previous year. This figure was reduced by 32 MNOK in the budget proposal submitted by RCN, and the actual budgetary allocation handed down by Government reduced it by a further 47 MNOK, meaning that the actual budget received was only around 10 MNOK more than the previous year. To provide a more substantial increase (from the KUF budget) would have dramatically reduced the funding available to other divisions, so the status quo, to a large extent, is maintained.

Second, the internal arbitration within RCN can create frictions between Ministries and their respective Research Divisions when explicit agreements between the two parties are not realised in RCN's composite proposal. BF cited two cases where the Ministry of Fisheries (FiD) asked BF to request a substantial increase in funding. FiD was reliant on the request coming from RCN so that it could argue internally for an increased R&D budget from Government. BF complied with FiD's request, but this was rejected by the Executive Board (in order to safeguard 'across the board' increases) and did not appear in RCN's formal budgetary proposal. This angered and confused FiD, which then had little grounds for arguing for an increase within the Governmental budgeting round. BF has been put in this position twice with FiD, and IE has had a similar experience with the Oil and Energy Ministry. However, in the case of BF, and in spite of criticism, the actual budgets from the FiD have never even met the "modest" proposals for increase proposed by RCN.

The above point illustrates the difficulty associated with the budgeting process, managing as it does tensions between divisional requests for growth, national priorities and the requirement to adhere to specific growth scenarios. It is important to note that the Ministries have never fully given the anticipated growth requested in the proposals. In the light of this, there does not seem to be much point in proposing even more unrealistic budget-increases that may give the impression that RCN is out of touch with reality.

The timing of the budgeting process also has a knock on-effect on the speed with which RCN can manage its project appraisal and selection processes. The operation of a fixed deadline for applications in mid-June, coupled with a budgetary process in which finances are not agreed until December, leads to a situation whereby applicants wait some 7-8 months for a decision. This seems excessively long by international standards (considering that only a single-stage bidding process is operated in most cases), and places a question mark over the appropriateness of setting a June 15th deadline. However, it should be noted that a proposal to set the deadline in August was not supported by the research community, as this would disturb activities in the summer months.

A further problem is caused by the fact that the appraisal and selection of projects has to take place before the budget has been agreed. Whilst the process allows RCN to get early indications as to how much funding will probably be available, and where it is likely to be spent, political decisions can sometimes cause 'late changes' which are hard for RCN to manage. For example, IE runs a KLIMATECH programme aimed at the development of clean technologies that help to reduce CO₂ emissions.

KLIMATECH was launched in part as a response to the Kyoto Treaty and has a budget of about 17 MNOK a year. When the government came under pressure to demonstrate that it was taking its Kyoto commitments seriously, it suddenly increased the annual programme budget by 20 MNOK. IE didn't request the increase, and since the budget decision came after proposals had been submitted and assessed, it found itself unable to spend the budget (even if all the applications were funded). Another example is the case where NHD requested in its budget letter that NT should prioritise biotechnology research at the University of Bergen. It appears that the Minister had delivered a speech at Bergen University in January of that year and promised an increased budget, but had failed to ensure that the message reached RCN in time for its inclusion in the budgetary cycle.

Earmarking also creates problems in relation to the appraisal and selection of projects, in that it can require funding decisions to be made on the basis of pre-defined 'quotas' rather than quality or relevance criteria. Most of the Divisions can point to examples where Ministries' allotment letters require certain amounts or proportions of funding to be allocated, by institute, sub-discipline, geographical region, and so on. This is particularly problematic where two or more Ministries jointly fund a research programme, and each has specific ideas about how the money should be spent. For example, funding for Strategic University Programmes (SUPs) within NT have had to be distributed over four universities within a certain bandwidth for each university. After proposals have been judged by international peers on quality, the 'quota' system has to be fulfilled with the ultimate possibility that good proposals at a certain university would get no funding, while ones with less good referee reports would be supported. This quota system has gone now but has been replaced by fixed quotas

concerning the different enabling technologies NT is expected to cover with NHD funding. SUPs supported from KUF funding do not suffer from this problem.

In conclusion, it is fair to say that the current budgeting system creates a number of not insignificant problems for RCN's functioning. It creates internal competition between Research Divisions and animosity between these and the Executive Board and the Strategic Planning Division. It consumes a substantial administrative resource in and of itself, and interferes with the research selection process. However, perhaps most important, it serves to limit the extent to which strategic planning can be operationalised by RCN.

- **Funding modes**

RCN has three funding modes

- Programmes
- 'Free projects'
- Infrastructure

Each of these is discussed in turn below. Please note that the data shown in this section was supplied directly by the six Research Divisions.

- **Programmes**

RCN has three kinds of research programmes

- **Basic research** programmes are programmes established to produce knowledge or competence within prioritised fields
- **Action oriented** ('handlingsrettet') programmes are primarily geared towards the public sector or organisations, and shall make contributions to the enhancement of the knowledge base for societal planning on various levels of government (forvaltningsnivå), for the development of public sectors and for political decisions
- **User controlled** ('brukerstyrte') programmes are geared towards industry (næringslivet), in which users and researchers collaborate, and in which users contribute to the financing of projects

In addition BF operate a fourth category (value chain programmes) which is a combination of the three, representing a rare institutionalisation of the original intention to use RCN as a way to co-manage and integrate basic and applied types of research.

In most cases, the above categories do not appear to have a significant bearing on the ways in which the programmes are organised or managed. That is, programme definition and implementation procedures do not generally vary by type of programme, but rather according to the operating Division or programme board. It is not clear whether the organisation of programmes into 'types' serves any useful purpose, administratively or otherwise, and the Divisions make little or no reference to these in explaining how and why the portfolios of programmes are organised as they are.

Doksy (RCN's procedures manual), section 2-5-1 states that 'a research programme is a strategic, goal-oriented, co-ordinated and time-limited research effort to generate new knowledge or competence within a defined field (subject or branch)...'. In some respects, the programmes of each Division could be claimed to operate according to this description. They are strategic in the sense that they cover areas identified as important within Governmental, Ministerial or Divisional strategies. They are goal-oriented in the sense that each programme has an associated set of goals. They are coordinated in as much as they are managed as unitary entities. They are time-limited in that each operates for a fixed period of time. And, almost certainly, each programme will generate new knowledge or competence within a defined field.

KS, MU, NT and MH operate programmes that cover certain specific sub-areas within their overall spheres of responsibility. There is little clarity as to why, for each of these four Divisions, the number of programmes should be as they are, why they should be in the areas they are, or why they should be the size they are. In most cases these programmes will relate to areas where, for historical reasons, one or more Ministries have made dedicated budgetary allocations that continue to this day. Often the size of the programme will be justified on the basis of 'demand' (in other words, the size of the community that conducts research in that area). Less commonly (though this situation is on the increase) programmes relate to areas of 'major effort' where dedicated budgets have been secured for strategic reasons, in order to grow the volume of research procured in a given area.

IE and BF both operate 'wall to wall' programmes, such that every proposal and project under the Division's responsibility will fit within one of their programmes. Because their programmes cover the whole problem space, prioritisation of one area over another only happens via the setting of different budgets at the programme and sub-programme levels. Each of the programmes has a different budgetary allocation, which is set by a combination of historical precedent, current demand and strategic considerations. Within BF, different budgetary allocations are also made to specific sub areas within specific programmes, in order to reflect current strategic priorities. That is, more or less research activity will be supported within sub areas of programmes, in line with current priorities. No such prioritisation happens at the sub-programme level within IE.

We believe that RCN could do more to develop programmes around a stronger sense of what societal objectives need to be satisfied, what are the best ways to meet these objectives, how long will it take, how much will it cost, and so on. Many of the programmes appear to operate as little more than organising frameworks under which topically related projects are clustered for administrative purposes.

- Numbers of Programmes

Exhibit 6 below shows the numbers of programmes, by Division, that were operational in 2000. It shows the spread of programme types, using the standard RCN categories. The Exhibit also shows the number of operational projects and the annual spend through programmes for 2000.

Exhibit 6 – Numbers of Operational Programmes in 2000

Division	Number of Programmes	Programme Types*	Number of Projects	2000 Spend on Projects (MNOK)
BF	8	8 V	519	225
IE	20	20 U	616	612
KS	25	16 A; 9 B	696	221
MH	9	7 A; 1 U; 1 B	340	115
MU	11	9 A; 2 B	302	112
NT	13	13 B	207	93

* A = Action oriented; B = Basic; U = User controlled; V = Value chain

Several of the Divisions have recently rationalised the number of programmes they operate in order to create a smaller number of larger programmes. The merging of programmes are motivated by the desire to give a broader (more comprehensive) scope to some of the ministerial research needs, and in order to gain administrative efficiencies. It is also claimed that this process helps to create a more coherent research community, and to foster multi- and interdisciplinary and cross institutional cooperation. However, how these ambitions are actually realised through the merging of programmes is unclear.

• Free Projects

KS, MU, NT and MH each operate free project funding, whereas BF and IE do not. The first four Division's programmes are focused on specific topics or disciplines that collectively cover only part of the whole problem space falling under the Division's responsibility. Free project funding allows any proposal (idea) that does not fit within a programme to fit within the framework of the Division and therefore potentially be supported. IE and BF, on the other hand, operate 'wall to wall' programmes, which means that any proposal on any topic within that Division's sphere of responsibility will fit within their programme structure. This arrangement removes the need to operate free project funding.

Whilst this might appear to be a marked difference, in reality all Divisions operate a system whereby once a proposal on *any* topic has been forwarded to the correct Division, it will find a home within the programme or free project portfolio.

Exhibit 7 below shows the size of the free project portfolios, by Division, for the year 2000.

Exhibit 7 – Numbers of Free Projects in 2000

Division	Number of Projects	2000 Spend on Projects (MNOK)
BF	29*	5.5
IE	0	0
KS	326	69
MH	318	71
MU	29	7.9
NT	409	112.9

* BF has ceased operating free projects. These are free projects commissioned prior to 2000

- **Infrastructure**

The third primary funding mode of RCN is termed ‘infrastructure’ and covers both Basic Institute Funding and SIPs/SUPs. Basic Institute Funding (BIF) is essentially core-funding going directly from the parent Ministry to those Institutes it is responsible for maintaining, via RCN. BIF awards are not made on a competitive basis. The amount of funding is dictated by historical precedent which itself is based loosely on the number of staff employed in the Institute. However, there have been recent moves to develop procedures that will allow BIF awards to be adjusted by RCN based on performance criteria. Not all Ministries have chosen to distribute their BIF awards via RCN, electing instead to continue to allocate these funds directly.

Only four of the Divisions (BF, KS, NT, MU) currently allocate Basic Institute Funding to institutes within their respective sectors.

Exhibit 8 below shows the number and amounts of BIF awards, by Division, in 2000.

Exhibit 8 – Basic Institute Funding in 2000

Division	Number of Awards	2000 Spend on Awards (MNOK)
BF	11	104
IE	0	0
KS	19	53
MH	0	0
MU	7	95*
NT	13	85

*Estimate

In recent years, Strategic Institute Programmes (SIPs) and Strategic University Programmes (SUPs) have been developed as a new element within the ‘Infrastructure’ funding element of the research organisations in Norway. Whilst being termed ‘programmes’, these are in fact large projects, which are awarded on a more or less competitive basis depending on the division (and more importantly) the Ministry in question. SIPs and SUPs are large project grants, awarded for a 3-5 year period, designed to support the main centres of excellence within the research institutes and universities. They are awarded on a competitive basis, but most commonly the competition for funds exists primarily *within* institutes or universities rather than between them. That is, some Ministries earmark specific amounts of SIP/SUP funding to a specific organisation, for which different research groups or departments within that organisation compete.

Four of the six Research Divisions operate SIP and/or SUP funding, the exceptions being IE and MH. IE does not allocate any funding under the ‘Infrastructure’ category, though it does fund larger, strategic (KMB) projects within its programmes. These have different funding arrangements to ‘normal’ projects and in many ways are similar to SIPs/SUPs. MH also does not, technically speaking, fund SIPs/SUPs, though it does allocate funding under the category of Infrastructure. MH operates a number of Initiatives, such as a ‘Major Grants’ fund and support for the establishment of key research groups in the MH field.

Exhibit 9 below lists the numbers and funding of SIPs/SUPs, by Division, that were operational in 2000.

Exhibit 9 – SIP/SUP Projects in 2000

Division	Number of SIPs & SUPs	2000 Spend on SIPs & SUPs (MNOK)
BF	65	96
IE	0	0
KS	40	34
MH	31*	21
MU	27	28
NT	77	250

* Technically, MH does not fund SIPs and SUPs. However, it does make large strategic awards under the 'Infrastructure' category, so these are shown here.

There is a trend towards increasing the amount of SIP/SUP funding at the expense of other modes. This appears to be happening for two reasons and in two ways. First, less money appears to be being spent through programmes and/or free projects in order to create portfolios of larger (SIP/SUP) projects. Second, BIF funding is decreasing as part of a wider effort to place infrastructure funding as a whole on a more competitive footing.

- **Formation of new programmes and other initiatives**

International practice in mission-oriented research funding agencies is moving towards using a standard structure for programme definition, in order to help quality-assure programmes. The UK 'ROAME' checklist⁴ is an example. VINNOVA's MAP is another. The procedures manual gives some guidelines but this type of more specific support is not used. While management by objectives has long been discussed in the council and is in the process of being introduced from 2001, programmes do not yet have SMART⁵ objectives.

Few completely 'new' programmes have been launched in recent years, though all Divisions update and adjust their programme portfolios on a reasonably regular basis. The major changes that have taken place have revolved around rationalisation of programme portfolios to create a smaller number of larger programmes.

A programme idea can come from anywhere but is generally cited as arising via discussions between the Divisional Board, the Division itself, the Ministry, and the research community. Once there is a general consensus that a new programme should be planned, the Divisional Board appoints a planning group made up of RCN staff and representatives of users and the Ministries that may contribute funding. A programme plan is drawn up which is officially approved by the Divisional Board. The Divisional Board then appoints a programme board to implement the programme.

In general the Divisional Board normally appoints the Programme Board for a period of 2-3 years (normal programme period is 5-10 years) and approves the programme plan and mandate for the Programme Board. The Programme Board prepares an

⁴ Rationale, Objectives, Arrangements, Monitoring, Evaluation

⁵ Specific, Measurable, Ambitious, Realistic, Time-delimited

action plan based on the programme plan, which is formally approved by the Divisional Board and revised every year and again approved by the Divisional Board. The Divisional Board decides on the budget for each programme.

The formal instructions for defining and planning programmes are set out in the Doksy and appear sensible, involving defining priorities, setting objectives, consulting, etc. However, it is difficult to get under the skin of this to see what really happens.

- **Project Acquisition**

- **Calls for Proposals**

The main call for proposals issued by RCN is set out in the annual information brochure (*Forskningsmidler*) published in hard copy and on web. This document is intended to provide prospective applicants with all of the information necessary in order to apply to the Council. In addition to the main document, calls for proposals are announced in the press and specific information may be sent to key organisations, depending on the Division and programme/initiative in question.

There is an annual common deadline for applications (June 15th) in most cases, though industrial applicants (user-led projects) can submit proposals at additional points throughout the year (3 for IE, and 2 for BF). Other Divisions also operate calls for proposals at different points in time where a programme board or other funding committee decides it wants to, but in most cases the June 15th deadline is adhered to. This is one of a number of areas where a good deal of rationalisation has taken place over the past few years, with several divisions moving from a situation where applications can be submitted at any time throughout the year.

- **Application procedures**

A standard application form is now used for all project applications. The form itself follows the normal conventions of application requirements and covers the same ground as would normally be expected. This common application for all projects is a small triumph in terms of efforts to develop RCN-wide standardisation of processes. It, in conjunction with the common deadline for applications, is one of the few obvious areas where a set of procedures has been developed that are standard for the whole organisation⁶. From the administration's point of view, there are no obvious problems with the standard application form or the application process itself.

- **Appraisal and selection procedures**

On receipt, all proposals are checked to ensure that the applicant has directed them to the right place. In most cases applicants will specify the Division and the programme to which their proposal is directed, but RCN staff will decide where to put it if not (and will sometimes overrule the applicant if they think she has got it wrong). In this

⁶ Several interviewees have pointed to the Doksy as a source of 'common procedures' but it seems to me that these lay down general guidelines which still allow for huge amounts of variability in the actual processes undertaken.

latter circumstance, some Divisions will notify the applicant of the change, other Divisions will not.

Once every proposal is considered to be in the right place, the process of appraising projects begins. There is a massive amount of variability across RCN as to the precise mechanisms employed in appraising and selecting projects, although most Divisions have common procedures for each primary funding mode they operate. We therefore detail below, by funding mode, the main processes employed for project appraisal and appraisal within each Division.

- **Appraisal & Selection of Projects within Programmes**

The appraisal and selection of projects within programmes is always on a competitive basis, and most commonly takes place within a single-stage process. All of the Divisions have Programme Boards (generally one board per programme) or Programme Steering Committees who have responsibility for overseeing the implementation of programmes and the funding decisions that take place. Proposals can be assessed in a variety of ways, sometime by Programme Boards, sometimes by external (national or international peer review), and sometimes by RCN Divisions themselves. In most cases proposals are assigned numerical scores against pre-specified criteria. These scores are sometimes used to sort proposals into ranked orders, in other cases they simply guide discussions. Programme Boards normally have the authority to take funding decisions.

Set out below are descriptions of the project appraisal and selection processes employed within each Research division.

Bioproduction & Processing (BF)

Proposals are assessed by external peer review. Each proposal is assessed separately by two experts who are asked to reach agreement as to the quality of the application. A third assessor is used if agreement cannot be reached. Standard assessment forms are used. BF programme managers gather the scores and comments from appraisers, and then prepare information packs for the programme boards. Programme Boards meet to discuss the submitted proposals and the peers' scores and comments. They then take funding decisions.

Medicine & Health (MH)

Programme Boards assess all proposals against six standard criteria on 5-point scales. Each board member assesses every proposal, but one or two 'lead' reviewers are appointed. RCN programme managers collect in the scores and comments, which are reviewed at a subsequent meeting of the Board. All proposals are discussed in turn and funding decisions are made based on the discussions.

Industry & Energy (IE)

Proposals are assessed by the RCN programme co-ordinator/manager responsible for the programme, using the Provis system (10 criteria + overall score, 7 point scale). Proposals are sorted into ranked order (based on overall score) and then a recommendation is made to the relevant programme board. The highest scoring proposals are generally funded, but also lower ranked proposals might be funded if the relevance to the programme objectives is high. Some programme boards have elected to use external peers to assess proposals (in addition to RCN staff). From

2001 all programmes will utilise external peers to assess KMB proposals, whilst assessment panels will assess BIP proposals.

Science & Technology (NT)

Each proposal is assessed by three external peers, most of whom are drawn from outside Norway. The RCN programme co-ordinator decides on the allocation of proposals to external peers. Peers score proposals against 4 criteria on a 5-point scale and then assign an overall score. The Programme Co-ordinator collects scores and prepares a ranked list. The relevant Programme Board then meets, goes through proposals, and assigns relevance scores based on the programme action plan. The Programme Board then takes funding decisions based on the relevance and quality assessments.

Culture & Society (KS)

Programme Boards are delegated authority to select the type of process to be employed. Some Boards operate a single-stage process; others operate a two-stage procedure. They can use external peers to assess proposals, or assess bids themselves. Proposals can be scored against standard criteria, or simply discussed in meetings. General guidelines are given to Programme Boards in the form a 'toolbox' of procedures but the version we were supplied did not contain very detailed specifications. Programme boards have authority to allocate funds.

Environment & Development (MU)

Programme Boards have the authority to decide how to appraise and select projects. External peer review procedures are generally employed, with two experts scoring proposals against standard criteria. Sometimes programme boards assess proposals themselves. Standard appraisal forms exist, requiring proposals to be scored against 10 criteria using 5 point scales. However, their use is not mandatory.

Comments

All of the processes employed demonstrate elements of good practice, and we have little to indicate the appraisal and selection processes do not result in sound decisions. What is striking is the amount of authority delegated to individual programme boards to decide how proposals should be appraised and selected. This is particularly the case for MU and KS, whose staff were unable to detail the specific procedures employed because they can differ substantially from one programme to the next. As a result, the decision-making processes are not as transparent as they could be.

Allowing the flexibility to employ different procedures in different circumstances is not in and of itself problematic. However, there is little to indicate that there are sound reasons as to why one programme follows one set of procedures whilst another programme employs a different set. Procedural decisions appear to be driven almost exclusively by the personal preferences of individual Programme Boards.

The use of external peer review is increasing within RCN, but the relationship between the scores assigned by experts and the funding decisions taken is unclear in the majority of cases. The extent to, and basis upon, which programme Boards can 'overturn' the peers' assessments (fund proposals with lower ratings than other 'rejected' proposals) is unclear. Appraisal (scores) and funding decisions are de-

coupled in most cases, but the extent to which the former drives the latter is not transparent (i.e. there is nothing to ensure that the highest rated proposals will be selected). In some cases scores do not appear to be actively considered as part of the decision making process, and are employed more as a 'discipline' to ensure that Board members read all of the proposals prior to the Board meeting.

Each Division appears to utilise a different set of appraisal criteria and scoring system from the next. In almost all cases, the appraisal criteria are 'generic' to that Division and are not adjusted or optimised by type of programme (though IE do introduce different criteria for different project types). There is no evidence that specific appraisal criteria are 'weighted' in order to prioritise projects that are stronger on one aspect than another.

There also seems little logic as to why proposals submitted to one Division would be assessed against five criteria whilst those submitted to another Division would be assessed against ten. However, ranking of proposals (where employed) is generally driven off the 'overall' score assigned by assessors, rather than those assigned against individual criteria, and there is no indication that any of the Programme Boards look beyond the overall score when attempting to arrive at funding decisions. Given this, the idea that proposals are assessed against different sets of appraisal criteria may be contestable.

The appraisal criteria employed relate primarily to scientific (quality) issues, and assessments of 'relevance' tend to be considered separately by the programme boards. However, the formal scoring system used within IE and BF (PROVIS) encompasses a broader range of appraisal criteria like relevance, additionally, risk, value creation, overall project quality and international collaboration.

Where relevance assessments are employed they are much more likely to relate to a proposal's 'fit' within a programme or prioritised area than to its ability to contribute to a programme's objectives. Furthermore, in many cases programme objectives are stated in terms of 'funding' targets (e.g. increase the number of PhD students in the area of xxx) rather than research results.

The treatment of potential conflicts of interest within the 'Board' and 'Committee' structure employed within RCN also merits discussion here. Whilst the Doksy sets out (reasonable) guidelines for the treatment of conflicts of interest, decision making processes are so variable that there is virtually no way to test whether or not the employed 'procedures' are adequate to control for conflicts of interest. Whilst it is unlikely that any single individual could behave inappropriately within an otherwise well functioning Board, the potential for entire Boards to behave inappropriately does not appear to have been addressed. Given that the Division Boards often delegate both decision-making authority and the authority to define selection procedures to a group of interested individuals, it is hard to see how the system is not open to abuse. Members of Programme Boards have an undeniable interest in the funding decisions that they take, so good practice dictates that rigorous and transparent procedures are employed in order to ensure that propriety is upheld. At present, this is clearly not happening.

One further point merits discussion. The Research Divisions raised concerns over the degree of specificity handed down by Ministries in their allotment letters detailing how the funds should be distributed. We therefore anticipated that there would have to be significant element of ‘juggling’ in order to ensure that the selected projects matched the Ministries requirements. We would have expected that in some cases good quality proposals would have to be passed over in favour of weaker proposals, in order to ensure that Ministerial quotas were met. However, none of the interviewees cited this as a problem and none indicated that there was a discrete step in the procedures where such adjustments were made. This implies that either the earmarking does not come down to a level where it affects the workings of any individual programme board, final selections of projects ‘accidentally’ fall in line with Ministerial earmarking, or Ministries fail to check that the selected projects collectively meet the quota systems they have requested.

Whatever the actual situation, good practice would suggest that ALL selection criteria be made clear to applicants before they apply, i.e. within the call for proposals. Given that the allotment letters are not given to RCN until several months after the June 15th general deadline for submission of proposals, there is no way that applicants can understand all of the selection criteria until after they have applied, if indeed Ministerial earmarking affect the selection processes. Furthermore, as far as we can tell applicants are never informed that their proposal was not selected because, for example, certain Ministerial quotas could not be transgressed.

RCN itself strongly denies that ‘hidden’ criteria are being applied in RCN’s selection processes, and that unsuccessful applicants are fully debriefed as to why their proposal has not been supported. It therefore remains unclear as to whether Ministerial earmarking do or do not affect proposal appraisal and selection within RCN.

- Appraisal & Selection of Free Projects

Free project funding is operated by four of the Divisions. In most cases, free projects ‘committees’ are appointed to fulfil a similar function to the Programme Boards. MH has four such committees, KS has fifteen (but is in the process of reducing this number), whilst MU and NT have one committee each. Where multiple committees are employed, each tends to have ‘disciplinary’ responsibility – that is, free projects are clustered on disciplinary lines with a separate committee employed to oversee appraisal and selection in each.

The four Divisions that fund free projects operate similar appraisal and selection processes to those employed within programmes. However, no ‘relevance’ assessments are given, and funding is based solely on scientific quality criteria.

MH’s committees assess all proposals and decisions are taken according to the same procedure as in the programmes. However, the MH Division Board decides ultimately on the balance of spend across the four committees and formally approves the projects.

Within NT, proposals are sent out for external peer review, following which NT Divisional staff prepares a ranked list which is then sent to its SUNT (free project) committee for approval. The Divisional Board takes final funding decisions.

Within KS, the 15 disciplinary committees rank proposals and the Division Board decides how the free project funding will be distributed across the areas. KS have recently reorganised their free project process, reducing the number of committees from 15 to 3. In future, free project proposals will be sent out for external peer review, and the three committees will be responsible for overseeing the process.

Within MU, free project proposals are sent for external peer review, and a single committee decides on project selection based on the data obtained.

- Appraisal & Selection of Infrastructure Awards

Basic Institute Funding

Basic Institute Funding (BIF) is not currently awarded on a competitive basis (at least not in any real sense) except within NT where external peers assess applications in terms of scientific quality and NT's BIF committee looks at issues of relevance. In all other cases the recipients of this 'core' funding are decided by the Ministries, as is the amount to be allocated. The Division Boards oversee the process within their overall responsibilities for managing Divisional R&D funds. RCN has, in recent years, been discussing with Ministries opportunities for breaking out of this existing system, and placing BIF awards on a more competitive basis. For example, via an agreement with the Department of Agriculture, BF holds talks with the agricultural research institutes on how to balance basic funding versus strategic programmes. Over the past years there has been a development towards more strategic programmes and less basic funding, implying a stronger emphasis on the strategic allocation of infrastructure funds to the institutes.

SIP/SUP Funding

The appraisal and selection procedures pertaining to SIPs and SUPs differ from one Division to the next, as set out below.

Bioproduction & Processing (BF)

BF employs a two-stage process for SIP/SUP applications. Outline proposals are submitted in the Spring of each year, and assessed for their relevance by the relevant Programme Boards. The Divisional Director considers the Board's comments and then makes a recommendation as to which should be invited to prepare a full proposal. The Division Board makes the formal selection decision. Full proposals are invited to be submitted by the General deadline of June 15th, and these are then each sent to two international peers for assessment of their quality. Divisional staff collect in the scores from the peers and factor in their own 'relevance' assessments. Programme Boards are also asked to comment at this stage. Again, the Division Director makes a recommendation to the Division Board as to which projects should be supported.

Science & Technology (NT)

NT operates a one-stage application procedure for SIPs/SUPs. Full proposals are sent for external peer review, usually to 5 referees from outside of Norway. RCN programme management staff appoint the peers. The peers score proposals against 4 criteria on a 5point scale and provide overall ratings. Divisional staff gather the scores and comments from the peers, add in their own assessments of relevance, and

prepare a ranked list. This is then sent to the RUSP (Strategic Programme) Committee for comment. NT staff then prepare a recommendation for the Division Board which takes the formal funding decision.

Environment & Development (MU)

MU operates on single stage application process. SIP/SUP applications to MU are sent for external peer review, and then discussed by a special advisory committee. Competition exists only within Institutes. We understand that the Ministry of Environment has to formally check and approve SIP/SUP decisions taken by the Advisory Committee.

Culture & Society (KS)

A combination of external peer review is used in conjunction with advice from two funding committees for basic (infrastructure) grants. The KS Division Board takes ultimate funding decisions, within earmarking constraints.

Medicine & Health (MH)

As indicated in the previous section, MH does not formally operate SIPs/SUPs. However, it does fund large strategic and 'excellent' projects under the 'infrastructure' category. International peer panels are employed to assess applications and rank proposals, whilst the Division Board takes the ultimate funding decisions.

Comments

As with the programmes, we can see high level of variability of processes across the Divisions, without any obvious guiding logic. External peer review is more commonly employed in the assessment of SIP/SUP applications, which is appropriate given their larger scale. However, the actual decision making processes remain rather unclear, particularly given the higher level of earmarking that exists within the 'Infrastructure' funding category.

One additional point of interest here is that BF cited a clear example of lower quality SIP/SUP proposals being funded in a prioritised area in order to ensure that some work is conducted. This is one of the only examples where a concrete example has been given of quality considerations being relaxed for 'strategic' reasons.

• Monitoring and reporting

Standard project monitoring and reporting arrangements exist for most projects (as with the application forms, this is an example where the outward facing elements of RCN business are standardised to a greater degree than the internal aspects). Projects do not specify technical milestones, so reporting is 'routinised' into an annual cycle. Once a year a statement of technical progress and results (if any) is submitted by the grant holder to the relevant Division, and the Divisions use this information to compile annual reports concerning progress and results.

Grant holders are permitted to make financial claims three times per annum. These are basically statements to confirm that progress is being made and resources are being consumed. There is both an internal auditing and accounting system within

RCN to verify the financial claims, and the Office of the Auditor General also checks the use of money. The Controller Department (in the Organisation and Finance Division) makes frequent site visits and does other systematic monitoring on the use of money, both in relation to funding goals and administrative regulations. The programme boards are responsible for monitoring research progress, and on occasion they make correctional decisions. However, we were informed that, once funded, it is very rare for a project to be terminated before its planned end date. This is a further indication that the organisation behaves first and foremost as a distributor of funding, rather than as an organisation which funds research in order to achieve results

• **Strategy Development**

Strategy development within RCN occurs at a number of different points within the organisation. The Executive Board has responsibility for setting RCN's overall policies and the strategy of RCN as an organisation. The Strategic Planning Division provides support to the Executive Board on strategic matters and advises on research policy in a general sense. However, policies and strategies relating to research funding within Norway are set and managed by the six Research Divisions and their respective Boards, in conjunction with the sectoral Ministries they serve.

In this section of the report we look at a small number of examples of strategy development within RCN.

• **Biotechnology as an Example of Cross-Divisional Strategy**

In 1994, the Executive General of the Ministry of Trade and Industry (NHD) complained about the neglect of biotechnology by RCN. In response, the then new General Director of RCN installed an external expert group to develop a perspective analysis and a task oriented plan ('perspektivanalyse og handlingsplan') for biotechnology.

The group had nine members from university (3), høyskole (2), industry (2), the 'research ethics committee' and the directorate for nature management ('*direktorat for naturforvaltning*'). The members had disciplinary backgrounds in medicine, agriculture, environment, and industry. It also had an advisory member from each of the six research divisions of RCN, including Ms. Abildgaard, now responsible for the co-ordination of biotechnology at RCN. She also acted as secretary of the expert group. In 1995, after _ year, the group came with a 10 year plan, *Perspektivanalyse og handlingsplan for bioteknologi 1995-2005 (In Norwegian)*.

Objectives for Biotechnology in Norway 1995-2005

- To promote sustainable development of biotechnology in Norway in line with the law of genetic technology
- To educate highly qualified personnel for Research and Development activity within the public sector, the institute sector, and the biotechnology industry
- To stimulate and continue the growth in both the quality and scope of Research and Development within the biotechnology industry
- To identify new areas in which Norway can develop biotechnology markets and to propose further goal-oriented efforts within these areas
- To strengthen the existing biotechnology industry in Norway and to implement biotechnology in other industry sectors where this is desirable
- To increase significantly Norwegian industrial activity in international markets both within and beyond current biotechnology companies
- To identify barriers to the development of new industrial activity and to formulate proposals for measures to ameliorate the situation, including improving access to venture capital of appropriate scale and duration

The group expected that this plan would be accepted as it was, but there was not a well-defined implementation process. Even the printing of the document took more than half a year. The strategy was developed by the co-ordination-group of biotechnology and the previous director of BF.

This group came with an overall strategy for RCN in the autumn 1996, which was accepted early 1997 (*Strategi for Bioteknologi, Mars 1997*). The principal objective of RCN for Norwegian biotechnological R&D was determined as:

'Norwegian biotechnological research and development shall contribute to utilizing the opportunities presented by modern biotechnology for socially beneficial achievements conducted through safe and ethically sound activities.' (p.39)

Through the strategy, the Council states that it will

- increase the national competence through an increase in financial resources, develop the research sector through collaborations, networks and evaluation of exchange programmes
- prioritise biotechnological research for medicine and health, food production and marine biotechnology and help to capitalise on research in these areas
- integrate evaluations of environment, safety and ethics within biotechnological activities
- continue a decentralised organisational management of the area

It was also decided that biotechnological efforts would be made visible within the budgets.

In addition each division would subsequently elaborate on this general strategy and make divisional strategies for biotechnology. Some divisions have done this indeed, others did not see this as important. According to Abildgaard, the strategy has not been used and implemented systematically, but remains important as an overview of what is going on. In 1998, the Nærings og Handelsdepartementet (NHD) developed a National Strategy for Industrial Biotechnology (*Nasjonal Strategi for Næringsrettet Bioteknologi, in Norwegian*). This strategy is supported by six ministries. RCN was not formally involved, but informally like many other actors. The strategy is based on RCN's strategy and adopts (with explicit reference) RCN's priority areas.

The strategic documents are used as the general framework for operational activities. Principles of these operational activities are

- importance of basic research and competence building
- focus on sustainability and ethics
- no GMO food but build up expert knowledge for international discussions
- industrial developments, and
- the three priorities

There is research on production of food, but it does not aim at GMO's but at understanding the biology of food production.

RCN has not made systematic evaluations of the activities on biotechnology. It is unclear for instance whether resources have really increased. According to the Research Statistics it has decreased, but as categories within Research Statistics are overlapping and biotechnology is also within other categories like Marine science. Looking just at the programmes for biotechnology in the divisions the resources have increased, but that is within RCN only. The National Science Indicators report indicates that in the field of '*Molekylærbiologi og genetikk*' Norway's research activities are relatively below average and have an impact also below average, measured with ISI databases for scientific articles from 1994-1998. (Nokkeltall for medisinsk og helsefaglig forskning, 1999 – fig 2-12) The bibliometric study for the RCN evaluation by ISI-FhG indicates that Norwegian biotechnology citation rate of 10.17 citations per paper is above the expected rate of 9.20. The NFR related biotechnology papers draw a higher impact compared to all Norwegian biotechnology papers in total. The analysis shows also an increase in international co-authored papers from 34% in 1993 to 45% in 2000. The recent Principal Evaluation Committee for Research in Biology and relevant areas of Biochemistry however concludes that Norway is lagging behind its neighbours in Scandinavia and Europe in applying and developing the revolutionary techniques in molecular biology. Without urgent investment in these areas Norway will not be able to capitalise on the commercial developments that come from a range of fields of basic research. According to the committee the main cause is the emphasis on directed science at the expense of investigator initiated, curiosity driven science that uses selection criteria focused only on scientific quality.

Evidence for the success of the strategy on biotechnology in Norway is not clear, though there is evidence that the strategies have contributed to a shared understanding and responsibility for biotechnology among the divisions. In 1994, when strategy development for biotechnology started, this failed because divisions still raised the flag of the old organisations. In 1993 when BF started with an informal biotechnology co-ordination group, this did not really work.

In another way, the biotechnology case is also revealing in that although it was a cross-RCN effort, the Strategic Planning Division (SPD) was not significantly involved. The tradition in RCN is that the divisions handle scientific strategic processes themselves, and SPD has not been tasked with becoming involved in this type of work. However, there might be a reasonable expectation that SPD could act as a competence centre in relation to strategic planning *processes, tools or techniques*, and could thereby support the individual Research Divisions in their own strategic planning efforts. However, this seems not to have happened, and is perhaps something of a missed opportunity

The result is a variety of initiatives to improve strategic acting, without a clear general framework. Every division has started with some strategy development, sometimes because of its specific role in the sector. BF has developed competence profiles of institutes and BF related university research, and wants to implement these profiles through allocation of the SIP funding. IE has in developed a new strategy as well: R&D structure for value creation, which it implements through new innovation programmes with support for user controlled research and for industrially relevant strategic research. In the other four divisions, the development of strategy making has been less encompassing. Medicine and Health has focussed on improvement of its

role as a strategic intermediary through improving the information on 'its' research sector and co-ordinating strategies of other funding bodies. The role of its director in the FUGE initiative is an example. KS has worked on the improvement of programme management through developing a manual. NT has used disciplinary evaluations to promote the development of disciplinary plans, but the actual development of strategies happens outside NT. MU has made a number of strategic documents including recently future scenario's for the environment. Two of these initiatives are analysed in some detail in the next two sections.

The development of these divisional strategies seems not to be managed or guided from the top level. RCN's Strategic Planning Division is not involved in the development of these divisional strategies, and up till now there is no overall strategy of the research council which guides these divisional strategies. There is a council strategy 'Forskning for Fremtiden', but none of the divisions uses this as such. The Strategic Planning Division is working on a new council strategy. Section 4.4 describes this process.

- **Competence profiles as a change strategy.**

(Fou-miljøenes kompetanseprofil. Rapport Juni 2001, In Norwegian)

The report aims to give a better insight and overview of the R&D sector competence profile and national competence need. The assessment of the needs of national needs of the sector is based on a series of government reports on the fishery and agricultural sector and a sector analysis of BF from 1999. Chapter 2 and 3 of the report discuss the competence needs for fishery and agricultural through a number of themes. [Fishery: 'market', 'product, technology, and process development', 'fjord-, coastal- and ocean environment', 'fishing and harvesting', 'aquaculture' and 'Social research'.]. The chapters also list the relevant institutes for each theme and the 'competence situation'.

The competence profiles of the institutes were determined through

- asking the institutes about their (future) strengths:
 - current research at highest international level,
 - future research (5-10 year) at highest international level
 - current research national leading
 - future research national leading
 - real time evaluation
- using the evaluation reports of institutes
- the opinions of the internal staff of BF. Every institute has a co-ordinator / contact person within BF

Profiles include

- mission of the institute (*visjon*)
- Facts and figures for year 2000
- income of the institute
- staff figures: total staff, no of researchers, no of PhD's

- number of publications and per researcher
- competence profile made by institute
- results of the institute evaluation and the biological and biomedicine disciplinary evaluation.
- Recommendations

BF intends to use the SIP funding scheme for developing the R&D sector's current competence profile into the intended competence profile. In BF a Strategic Institute Programme is a grant of about 2-3 MNOK per year for five years.

Selection of SIP projects within BF is a two step process. Declarations of intent are evaluated on their programme relevance by the programme boards and selected by BF's Division Board. Subsequently, the institutes write full applications. Two international peers evaluate the quality of these full applications. If their judgements diverge, a third one is asked. BF staff assess the full applications also on their relevance in relation to the competence profiles and the overall institute policy (to avoid sudden major shifts). Peer evaluations and competence assessments are aggregated in a recommendation to the division board, which usually accepts recommendations it after discussion.

Although the competence profiles could be used for a real strategic role of BF in its respective research sectors, for its ability to use the competence profiles in that way, BF seems to be constrained by others. One obstacle is that with the introduction of the SIP funding scheme *for the agricultural institutes, an agreement was made between the Ministry and BF* that the total of the the institute basic funding and the SIP should remain the same for 5 years.. Current levels of basic institutional funding are pure historical. Although BF accepts the need for stability, they would also want to have a possibility to reward those institutes that perform well.

Another indication that the strategic possibilities of the profiles is not generally recognised is that within an interview with a senior advisor from BF his relations with the institutes was discussed. He would like to have more time to visit institutes relevant for his theme. He himself has responsibility for one institute, which he meets twice a year. At these meetings, he also discusses the reviews for the projects and the development of the institute. He was also responsible for the institute's competence profile in the document. Remarkably he did not make himself any reference to the document, and spoke very briefly about it when I mentioned it. It should, however, be mentioned that the competence project is under development and will be fully implemented in the years to come. The document itself is also meant to serve as a benchmarking tool for the institutes.

- **Disciplinary evaluations and strategies.**

All programmes are assessed both by the programme boards and by the divisional board, and external committees evaluate some. However, evaluation practices vary and formal external evaluation has (until present) not been a strong feature. The only places where evaluations seem to be systematically used are the disciplinary evaluations managed by NT, and in the management of the research institutes (see separate report in the institutes). Up till now, NT has organised disciplinary evaluations for chemistry, earth science, physics, and biology and biochemistry. In

progress are ICT and Mathematics and in preparation Engineering Science. The reviews are done by international disciplinary panels, with a mandate from the NT division. The division board decides about who is evaluated, the mandate of the committee and its coverage. In the case of biological sciences (ikke bare biologi som ble evaluert), BF, MU and MH were consulted and co-operated.

Members are selected in consultation with the disciplinary community. Deans of faculties and institute directors are asked to suggest candidates. First the chairperson is selected and after dates for site visits have been fixed other members are sought. The chair of the panel is asked to find a secretariat for the committee. NT considers itself not competent as non-scientists for such a task, does not have the capacity either and also wants to avoid the suggestion that RCN influences the evaluation.

The mandate is more or less the same for every committee. The review committee is asked to give an overview of the research in there discipline in Norway, asses the scientific activity and quality, the international and national collaboration, the training and mobility and the relevance of the scientific research. The last committee, for biology and biochemistry has been asked to give feedback on the mandate and found it clear.

The reviews are based on reports written by the institutions themselves according to list of information items and presentations of research groups involved to the international committee. The documentation does not include information on the research councils funding policies and for the discipline relevant programmes.

The reviews should lead to a set of concrete recommendations to the Research Council on the future development of the field. Given this aim, it is remarkable that NT has little control over the way the panel is organising and doing its work but by the mandate.

The same holds for the follow up of the disciplinary evaluations. When the disciplinary review has been published, the research council sets up a Planning Committee with members from the institutes and universities that were evaluated. Representatives from the council attend the meetings, but not as members. The secretariat is outside the division.

As for chemistry, the council decided to develop a Catalysis programme in response to the recommendations of the panel and the planning committee. It is said that also the universities or chemistry faculties use the reports for deciding about development of the faculty, but there is no systematic monitoring of the follow up activities.

The disciplinary evaluations reflect an international trend towards such evaluations and appears a logical consequence of RCN's mission. In that respect it is remarkable is that NT does not really built an internal capacity for such evaluations but delegates the management of the evaluation outside the organisation. As the quality of such disciplinary evaluation depends not only on the members of the evaluation committee but also on the organisation of the process and the quality of the input, delegation of these tasks outside the council implies risks for the development of this strategic instrument.

Given the role the evaluations (can) play in the development of RCN's priorities and programmes, it is also remarkable that it keeps aside in the Planning Committees. Even if NT wants to position itself as an agency of the scientific community it is unclear why it cannot participate. It seems to ignore in this way a clear opportunity to improve its strategic role.

- **Developing a strategy for RCN**

In December 1994 the council made its first 'Forskning for Fremtiden' strategy, and adjusted this in 1998. The strategy was the product of a difficult process involving Division boards and executive board and aimed to develop RCN as a holistic organisation. The document made clear what the organisation is about, but did not affect priorities. This strategy was revised in 1996 based on a broad external hearing and also revised in 1998. The main effect of the strategy was that it set the agenda for Norwegian research policy and several of the items in this FFF recurred in the government White Paper.

A new FFF is under development because RCN feels the framework conditions for the research council have changed considerably. The aim is that it is both a plan for RCN as well as a strategy of the whole Norwegian Research System, although it is unclear whether this latter objective will be accepted by other actors in the research system. The whole process was expected to take 1,5 year: A preparatory phase of half a year (second half of 2000), an internal analytic phase (January-May 2001) in which the divisions are involved as well, both as part of the steering group (directors meeting) and a task force (arbeidsgruppe) where all the divisions are represented, and then a strategic phase from June till December 2001.

In the preparatory phase, The Strategic Planning Division visited the Dutch research council to learn how they had developed their council strategy, checked external documents and divisional strategies to list main challenges of the council and had an external resource group to discuss these challenges. From these sources five topics were selected for further development in the analytic phase. The choice of the topics was approved by the directors' meeting.

The analytical phase started with discussion notes of about 10 pages on these topics from small groups from within RCN. These notes were edited by the Strategic Planning Division and summarised in 10 questions to the division boards. The answers of the divisions were subsequently translated into some options for RCN's strategy. E.g. on 'research and policy' the divisions had been asked whether society has a mistrust in R&D and whether that is a reason for a low input in R&D. In the answers the need for good communication about the role of R&D was emphasised. A choosing point induced from that was whether RCN should take the lead in communication on science and be a key actor in the Public Understanding of Science, or not consider it as its own role but as a responsibility for the researchers and research performing organisations.

The set of choices was presented in a strategy seminar in the Executive Board, which was the first time that Board worked that way. Now the Strategic Planning Division felt that it was important to include divisional staff and board in order to create ownership of the outcomes.

In the second, strategic, phase a first strategy is formulated by the project team with divisional representatives. This first version is subsequently after approval by the Directors Meeting, discussed in the division boards and the Executive Board. A new version will be discussed with ministries, and research institutions. It is unclear how universities will be involved in the process.

The process is based on the following thinking. Firstly RCN as an entity has to agree on its strategy, and this is done in consultation with Division and Executive board members (to ensure that the issues debated are of relevance to all parties). Then the major strategic issues are presented to the major universities, institutes, industries/industry-organisations and Ministries. Lastly, the final version is decided. Given that the strategic process is aimed not only at RCN but at Norway's whole research and innovation system, it seems that the process is very much based on internal consultation, with the Division and Executive Boards as only partially external discussants during the main development phases. There is a concern that the consultation is only opened up fully to people outside of RCN's internal structure relatively late in the development process. Involvement of a wider group of external parties (including some from outside of the Norwegian research system) might facilitate a more fruitful outcome.

• **Findings**

The possibilities to implement strategies are very limited due to three main factors

- The constraints and complexity of the budgeting process makes it not a good tool for implementation of strategies.
- Funding and policy instruments are not designed for implementation of strategies, but for allocation of funding
- Staff are unable to give priority to strategy making and implementation because of the workload of routine-based processes and other tasks.

The budget process does not support the implementation of strategies either. It is a resource intensive process undertaken annually. Comparative to the high level of stability in the budgets overall, by division, and by allotment area, the administrative costs associated with the process are disproportionately large in comparison with the results (in terms of year on year changes). Roughly 70% of each year's budget is already committed to ongoing projects, the vast majority of the remainder is tied up in allotments by programme, scientific field, institute, etc. so it is unlikely that any new strategy can be implemented until programmes end and new ones can be negotiated.

There is an obvious tension between RCN as a strategic organisation which is instrumental in shaping and directing R&D policy in Norway, and the current system which actually leaves little room for manoeuvre in terms of moving research resources from one area to another. This situation is improving with the research fund, but for many years the budgeting process has consumed a large proportion of management effort with little tangible results.

The process of strategy development is not very well coordinated within RCN, although there are several initiatives on which the organisation can build. Currently,

every division seems to follow its own approach, and seems not be bothered too much by what others have done - although everyone includes some consultation with the other divisions. As with programme management processes, there is room for different processes being employed in different areas, but we would expect to see some logic behind the choices

A good example of cross-divisional learning is that, like NT, KS and MH are now also preparing disciplinary evaluations for their fields of research, and are building on each-others' experiences. A negative example is the development of future scenarios for health, marine and now environment. Although MU is aware that MH and BF created such future scenarios, MU prefers to follow its own approach without clearly revealing why the developed procedures are inappropriate for its own needs.

Although each of the strategic processes divisions develop has some value, they also seem to rely very much on consultation with the usual bodies and people with whom RCN interacts. So the ones that are involved in these processes, are also the ones with which RCN interacts to run the procedures, especially the ministries and the programme boards. The processes seem to have little room for systematically engaging other actors in the process, especially not societal groups, foreigners and the like which really could give a different perspective. Moreover, sometimes strategies in the same field are or have been developed by other actors in the research system, without much co-ordination with those of the research council. MU is working on a new strategy, but the Ministry is doing one itself internally, and that will in the end determine the allocation. MU can only hope that ministry will be inspired by their visions and strategy.

- **Development of Internal Processes**

- **Co-ordination within RCN**

We have seen earlier in this report that the research divisions and the research programmes do have a large discretion over their own activities. The large discretion of divisions and staff over own activities should be set against the diverse contexts in which the divisions operate. In the organisational chart the research divisions look similar, but in reality their relationships with the academic sector, the government sector, industry and society varies widely. Taking the complexity of the context into account, RCN will always be in need of finding unity in diversity.

Co-ordination has also been established through the development of single application form, contract form, application date, website, and so on. While this improves the image of RCN as one organisation, under this surface differences remain. A clear example is that of the categorisation of RCN's programmes into three types: basic research programmes, action-oriented programmes and user-controlled programmes. In reality the way programmes are defined and managed is not related to the kind of programme, but reflects divisional and programme board preferences.

For the internal functioning of RCN as a holistic research council, it is important to distinguish two forms of co-ordination. There is 'weak co-ordination' between the research divisions on cross-divisional research areas and sometimes also on divisional strategies. This weak co-ordination depends on working groups established by the divisions themselves in conjunction with informal contacts between Divisional staff. Usually this 'weak co-ordination' does not go much beyond information exchange and consultation and there is not necessarily a significant impact on working practices. It is part of the working culture to inform and consult and to take each other's views into account, but for this weak co-ordination there is no body or person that can really impose outcomes on others. There is a clear impression from the interviews that this form of co-ordination has improved and contributed significantly to the commitment of staff to RCN as an organisation.

Strong co-ordination occurs around the budgeting process and around issues identified by the Strategic Planning Division or the Executive Board. The development of similar policies and procedures on specific issues, like programme management, evaluation, institute policy, and so on, is largely a result of pressure from above, but according to divisional staff such attempts at co-ordination are often time-consuming and rarely add value to the Divisions themselves.

Most divisions have rather easily adjusted to some set of common procedures: standard application form, standard contract, one application date, a common set of programmes. Although under the surface of common names for programmes, actual quite different practices survive. (see above for evaluations as well.) In some divisions (e.g. BF and IE) the programmes actually cover the whole area they are responsible for and explicitly aim to do so. Every applications should have a certain home where it can compete, and programmes do not reflect priorities. In other areas (MH, NT) programmes are more exclusive and do reflect priorities of the division or

the ministries it gets funding from. NT had developed programmes related to the science plans connected to disciplinary evaluation within the university (ex. Catalysis and Organic Chemistry Programme; Geosciences Programme).

Two important limitations in this respect are institute and evaluation policies. RCN has a broad range of responsibility for institutes. It provides base funding for 47 institutes, and plays a monitoring and advisory role for another 13. RCN has made great progress on setting rules and procedures for consistent institute funding. Strategic responsibility for the institutes has been devolved to the division boards by the Executive Board, making it difficult to have an overall institute strategy. Attempts to standardise policies for base funding and to influence the shape of the institute sector have foundered on the rocks of sectoral policy. In many cases, ministries devolve little of the institute management task to RCN. A useful standard on this point is the evaluation of the institutes, which has been put onto a common basis over a six-year cycle. In principle these evaluations could create a basis further to develop a policy for the institutes, but there is only patchy evidence that they have exerted a significant influence over either institute behaviour or RCN funding practice.

These are both outside RCN's real control, so it is impossible to build a feedback loop from evaluation to policy and practice.

The other failure for standardisation is the development of an evaluation policy. Formally the council has an evaluation strategy, laid down in a document of May 1997. This document sets out long-term goals for uniform evaluation activities

- To help provide thorough insight in the current status of and trends in Norwegian research
- To improve the quality of decisions in respect of research policy, strategy and operations
- To ensure that all levels of the research system consider the results of the evaluations
- To see to it that the Research Council takes part in international cooperation on R&D evaluation
- To safeguard the total confidence placed in the Research Council's objectivity and independence in respect of evaluation activities

In order to meet these objectives, measures were announced to introduce independent evaluation strategies to ensure co-ordination and comparability; to ensure more active systematic use of professional and operative evaluations; and to set up co-operation on evaluation within Norway and abroad. Implementation of the strategy was expected within six years.

Despite the fact that the document sets out a sensible evaluation strategy, we have found no evidence that a shared evaluation practice is developing. None of the interviewees at divisional level referred to the document as a framework for evaluation activities. Moreover, we found only few instances of systematic evaluation policies that could contribute to the long-term objectives: the disciplinary evaluations organised by NT; and BF's competence strategy in which institute

evaluations have found a place. Evaluations of programmes, funding modes, priorities such as biotechnology occur only on an *ad hoc* basis.

Our interviews and analysis of processes show that there is a rather large distance between the top level of RCN and the research division level. Although staff from the research division level collaborate within co-ordination processes established by the Executive Board or Strategic Planning Division, there is little impact from the top level on the operational tasks of the research divisions. The most crucial link between the two levels is through the weekly directors meeting, which is not formally part of the organisation. In the development of RCN as one organisation this directors' meeting is crucial and its role in governing the organisation seems at least as important as that of the Executive Board.

The scope for improved internal coordination and cooperation across the Research Divisions seems to be improving as the available research funds increase and as more top-down direction is given concerning the need for such improvements. In the first few years after RCN was formed, declining research budgets created competition among the Research Divisions. However, RCN appears to have begun to turn the corner in this respect.

However, it seems that there is still a long way to go in terms of improved cooperation and coordination between the Research Divisions (RDs) and the top-level of RCN, in particular the Strategic Planning Division (SPD). Some of the comments from the Research Divisions indicate that SPD is generating a lot of additional work for the RDs, most of which does not appear to add value to them or the organisation as a whole. Part of the problem is that administrative budgets and staff levels are declining in relation to the amount of work to be undertaken by the Research Divisions. Within this context, activities requiring additional work on the part of the RDs are often unwelcome and (sometimes) resisted. As such, cooperation suffers, and efforts to introduce new procedures from the 'top down' are severely hampered.

SPD realises that a lot of the work will not directly benefit the RDs as such, but argues that it cannot choose to disregard the requests. These tasks are instructed onto SPD either by the top management of RCN, the Executive Board or the ministries (mostly KUF and NHD). The reality is that RCN is an organisation in constant change, with limited administrative resources, increased workload, and striving to find the right balance between creating a "single organisation" and giving the Research Divisions enough autonomy.

- **Biotechnology as an example of cross-divisional co-ordination**

With the mix of disciplinary and sectoral identities of the divisions, and the nature of some scientific and social issues, it is inevitable that some issues span the boundaries of the divisions. From the very beginning of RCN it was recognised that biotechnology was such an issue. Each division has indeed some research on biotechnology and the programme have their own board, but BF has the biggest part. **Exhibit 10** below shows how biotechnology research is distributed across the six Research Divisions.

The co-ordination group has 2 members from each division, one at (sub) director level and one contact person. The group meets about 6 times a year. It is interesting to see

how over time strategies for biotechnology and the co-ordination group evolved. In interviews biotechnology was frequently referred to as a successful cross divisional co-ordination, and seen as a model by which other cross divisional issues such as environment and the new priorities could be managed.

Although the mandate of the co-ordination group is not very specific and the Programme Boards decide about the contents of their programmes, through the shared strategy development and the functioning of the co-ordination group RCN has created some capacity to respond to biotechnology related policy issues. Topics that were discussed recently within the co-ordination group are

- The realisation of the recent Ethics programme, which is financed by all six divisions. The programme is now prepared by an external expert group
- The distribution of applications over the appropriate programme, although most of this is done bilaterally by the programme co-ordinators
- The preparation of statements on new laws, like the recent law on prohibition of cloning of small animals (which would inhibit the creation of test animals for medical research) and the law on Intellectual Property Rights

Exhibit 10 – Biotechnology Research within RCN

Biotechnology in RCN (Budget 2001)			
Division	Programme	Budget (MKr)	
Biotechnology and Food	Biotechnology Programme	39,0	
	Other Programmes	15,0	
	Strategic programmes	14,9	
	Bioinformation	7,0	
	Bioprospecting	7,5	
	Start incentive for Bioinform and prospecting	11,0	
	<i>Sum BF</i>		94,4
Industry and Energy	MEDKAP	8,9	
	PROSMAT (Process and biomedicine industry)	19,8	
	<i>Sum IE</i>		28,7
Culture and Society	Ethics	0,6	
	<i>Sum CS</i>		0,6
Medicine and Health	Programme Molecular Medicine and Gentechology	10,2	
	Research Excellence programme	3,0	
	Strategic Programme	8,8	
	Cancer research	9,0	
	Free projects	13,0	
	MEDKAP	5,8	
	Other stipends	11,0	
	<i>Sum MH</i>		60,8
Environment and Dev.t	Biological Diversity: Dynamics, Threats and Management	2,0	
	Other	2,6	
	<i>Sum MU</i>		4,6
Science and Technology	From IKT to Bioinformatik	4,5	
	Basic biotechnology	5,0	
	Strategic programmes	32,5	
	Scientific instrumentation	8,8	
	Free projects	5,5	
	Other	4,3	
	<i>Sum NT</i>		60,6
	<i>Total</i>		249,7

The co-ordination group has also been involved in the FUGE initiative. The University of Oslo (UiO) had contacted NHD and KUF about its initiative and these ministries thought that UiO should go to RCN. RCN was also contacted by others

with initiatives (also small ones for SIP/SUP). The initiatives were interesting but had to be aligned. All initiatives were invited for a joint meeting (3rd November 2000). The director MH prepared the meeting and proposed a strategy to go for a large sum of extra funding. Participants at the meeting were enthusiastic and a small committee consisting of four members (appointed by the four universities) was formed, which was chaired by the director of MH. In January 2001 the report was presented to government and RCN (it is now decided). It was this national committee which prepared the FUGE documents. However, in order to keep in touch with RCN, there was established an internal group consisting of division directors and members from the biotechnology co-ordinating group.

For its development to and functioning as a *holistic* council, co-ordination is crucial for RCN. Most of the co-ordination between RCN's divisions and programmes is either the result of collegial interaction and consultation among RCN's staff, or the budget process. Standardisation of procedures and programmes contributes to the image of RCN as one organisation, but internally hides differences in operations at divisional and programme level.

The co-ordination of biotechnology reflects in many ways the possibilities and limits of cross-divisional co-ordination at RCN. Co-ordination is based on an internal committee which has a formal status, but not a clear mandate. The success of the committee depends entirely on the willingness of the members to invest time in the committee and to collaborate on a collegial basis. Co-ordination is realised through the good internal relationships between the staff. The committee has neither means nor the position to decisively manage tensions between divisions on biotechnology or to really implement a strategy. The positive side of this collegial ground for co-ordination is that the committee can act as an infrastructure and capacity to deal with new issues. This is clear from the advisory role the committee has obtained.

The negative side is that the co-ordination model is a fragile one. It is based on a strategy that has been deployed over a couple of years, through several strategy reports and ongoing inter-divisional interaction within the Council. Such co-ordination inevitably takes much time and can only function if there are no considerable areas of conflict. One may wonder whether indeed it can serve as a model of co-ordinating other cross-divisional areas which need to be implemented in a shorter time and for which there are tensions or major differences between the divisions.

- **Control over work**

The individual Research Divisions have a rather high level of autonomy over the tasks they undertake, and the ways in which they go about them. Their agenda is filled with what are considered by some to be 'routine' administrative tasks that fall well down the hierarchy of 'things RCN ought to spend its time on'. In other equivalent organisations, these tasks would not be dubbed 'administration' but 'research management' – something which in our view is not 'routine' and at present appears to hold an unreasonably low status within the organisation. RCN's primary function is to manage Norway's national public research funding system, and this is what most of the Research Divisions spend most of their time doing.

How staff fills in the discretionary space it has is different. Part of that seems to be personal preferences - persons with responsibilities for more than one programme may take a pro-active role in one programme and a more administrative role in another - but it also reflects divisional cultures. Within NT it is accepted for instance that staff have a large role in the ranking of the proposals on the basis of the review reports. Staff not only selects the peers, but also when the reviews have come in, they summarise these and suggest an overall ranking to programme and selection committees. These suggestions are usually accepted. Committee members decide on the basis of the summaries, only seldom taking the opportunity to go into the proposal (which are available at the committee meetings, not sent in advance). Seldom, if ever are the proposed rankings overturned by committee. Staff within IE also play a central role in the appraisal and selection process.

Within other divisions, staff do not play such a key role in the selection procedure. In these divisions programme committees do the selection. In MH they also evaluate the proposals and the role of the advisors is limited to organising the evaluation process. In other divisions where there is peer review staff may also suggest a ranking after consulting a national expert. However, the committee has full insight in the documentation (that is: the application, the two peer reports, and the report of the national expert) and uses this to make its own decisions.

Some of the staff from the research divisions try to focus more on developing programmes. They see themselves as more than just administrators and have (gained) sufficient knowledge of the field to join in discussions on the development of the programme. Programme co-ordinators especially work with the programme board in defining what to do and determine agenda and more and more also suggest the decisions to be taken. Culture and Society has made the explicit decision, to become more proactive in managing programmes after the users of KS had indicated that they liked such a pro active attitude. Other divisions also experience that programme committees appreciate an active role by RCN staff, even if they do not have a formal position to do so – and are just observers. Given this possibility for staff, it is remarkable how little guidelines there is about what is expected of contact persons for research programmes, and what is expected of programme co-ordinators and committees.

Some interviewees could not tell whether the suggestions they give comply to RCN strategies or those of colleagues.

Interviewees experienced that they had quickly become the ‘owners’ of certain issues. If you show some interest you easily get a task, and once you have been identified with it, it is difficult to lose it. A risk is that new tasks are assigned but without other tasks to be reduced or without support of other staff. Examples we came across were

- Responsibility for ICT research, which for a long time was assigned to only one person (in each division) with experience on this issue, despite the fact that it was a priority area. Only recently a better co-ordination structure has been set up for this area
- Responsibility for S&T indicators, which was moved to another department in the Strategy Division. But as nobody took it up in that department, the formerly

responsible persons had to keep doing it. Although others are now responsible, people still come to this person

Almost all interviewees told us that they learned their tasks 'on the job' and with the help of colleagues. Most start with a focus on the routine tasks. Most of the interviewees did not consider it as problematic that they had to learn the tasks this way. Those with longer histories in RCN are critical about the capacity of the organisation for learning and on the possibility for themselves to move beyond the routine tasks: those you cannot avoid and have to do anyway.

• **Standardisation of Procedures**

There is a clear pressure from the top for standardisation of procedures. Some interviewees told us that most of these attempts take a lot of time and have little value for the divisions themselves. The usual procedure is to establish an ad hoc group with representatives from all divisions with the task to come up with recommendations. It was suggested that the Strategic Planning Division could better support the strategy and policy development of the Research Divisions by being a competence centre on such issues.

The council in a way is split in two levels. There is the top level, which negotiates with the governmental level and represents RCN as one organisation to the outer world. The other level is that of the six research divisions who do their best to function productively in the face of a great deal of competing demands over the functions they perform and how they should spend their time.

From the top level there is a continuous pressure to standardise work processes and create a unified RCN, against what people see as the natural centrifugal forces that tend to drift the divisions and subdivisions apart. Strong convergent forces are built in the budget process and the application process (one submission date: June 15th, one application form, one contract form - but still different appraisal and selection procedures). The latter is now under further standardisation as the organisation aims to have a system in 2003 which enables full electronic management of all projects. Also in the development of the new Forskning for Fremtiden a lot of interaction with divisions is built in to make it a common strategy.

Some standardisation is more artificial, like the adoption of similar names for the funding schemes in each division. In reality, each division has its own approach for these funding schemes. For staff in the research divisions these co-ordination processes can be a burden, and some complain about it.

Routines the divisions perform, like the evaluation of proposals and the budget process change incrementally, but without much rationality.

Clear examples are the way programme boards function and sometimes have considerable room to develop their own procedures, and in general the way proposals are selected. There are differences and changes, but none of these seem to be related to clear arguments related to the aim of the funding scheme, the effect that a procedure may have or to balance failures in judgements.

- **Administrative costs and workload**

Running RCN and its various functions requires a considerable management and administrative effort. The Research Divisions act as secretariat to over 100 programme boards and selection committees, and process over 4000 project applications every year. They are responsible for managing around 4000 ongoing projects, which means that they have to process 12,000 financial statements and 4000 technical progress reports. They have to develop strategy, undertake the annual budgeting process, and liaise regularly with several Ministries and the research communities they serve.

Most staff members complain about the workload. They have witnessed a trend over the past few years where numbers of staff have been reduced whilst workloads have risen. There is a trend towards reducing the ‘central’ (permanent) administrative costs whilst using R&D budgets to ‘top-up’ administrative resource by funding external management resource. This is something we see in many national research funding administrations across Europe. Benefits of this trend include increased flexibility in the resource base and (sometimes) the ability to access expertise that would not be available on a permanent basis. However, the costs to the taxpayer are not necessarily lower under this arrangement, and there is almost inevitably a negative impact in terms of retention of skills and capabilities.

Exhibit 11 below presents the administrative cost data for the last 5 years, and shows that the proportionate spend on administration has declined over this period.

Exhibit 11 – Administrative spend versus R&D spend

<i>‘000 NOK</i>	1996	1997	1998	1999	2000
Total budget	2,476,394	2,719,690	2,764,327	2,985,276	3,174,264
R&D budget	2,320,872	2,561,283	2,607,460	2,820,762	3,004,344
Administration budget	155,522	158,407	156,867	164,514	169,920
Admin. costs from R&D budget	79,661	85,499	97,845	96,232	101,066
Adjusted total admin. costs	235,183	243,906	254,712	260,746	270,986
Adjusted total R&D costs	2,241,211	2,475,784	2,509,615	2,724,530	2,903,278
Admin. costs as a % of total spend	9.5%	9.0%	9.2%	8.7%	8.5%
Admin. costs as a % of R&D spend	10.5%	9.9%	10.1%	9.6%	9.3%

The main consequence of the high workload of RCN staff is that they have little time to learn systematically, undertake training, visit universities or institutes, etc. If agendas are not filled up with ‘daily work’ staff also gets involved in cross-divisional tasks (like standardisation of contract forms) which often take a lot of time, but have little direct relation with what staff consider their main task. They often feel they help the top with such efforts, rather than the other way around. There are disquieting signals that the quality of work is negatively affected by the workload, and in cases where strategic advice and information has to be provided, unreasonably short deadlines.

Interviewees told us that requests for information and advice sometimes arrive on their desk after deadlines are passed or with only a few days to go - although consultation is needed with other divisions, or statistical data needs to be collected. They also find that because of the workload a lot of good ideas of the staff are not

implemented, even where these are changes that would save time and money in the long run. Some processes regarding e.g. the application process or reporting consume a lot of resource, although with some better management systems they would take less. There is no time to develop such systems, and thus staff continue to be confronted with the same problems. A few interviewees just accept the workload, concentrate on the management of programmes and funding schemes, and display little ambitions to broaden the scope of their responsibilities and tasks. Within this context, training is not prioritised, and whilst each Research Division has a small budgetary allocation for training, this is rarely fully expended since staff do not have the time to take it up.

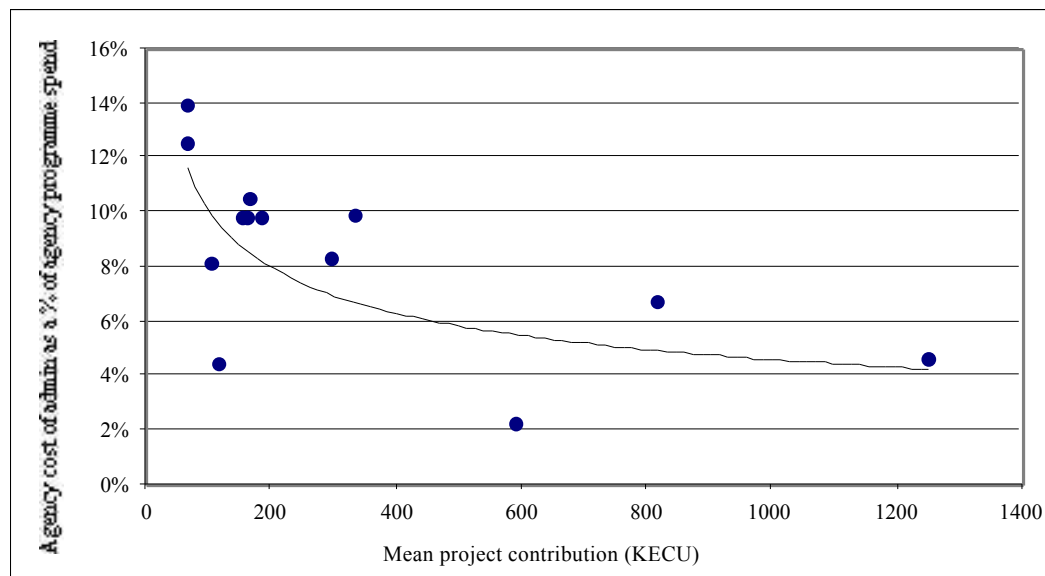
In contrast to the impression gained via interviews within this evaluation, external reviews of RCN' staff motivation and satisfaction carried out in 1996, 1998 and 2000, indicate clearly that the staff are highly motivated and thrive on their tasks, the independent working conditions and a number of other factors. The development has been positive over these years, and compared to a number of other Norwegian firms which have undertaken the same standard examination, the staff of RCN scores higher than the average in the 2000 review.

There are attempts to reduce administrative workload. A clear trend across the divisions is the reduction of the number of programmes. Four divisions have reduced the number of programmes since the start of RCN: BF went from 16 to 8; MH; from 14 to 9; MU from 30 to 12; and IE has recently reduced its programme portfolio from 20 to 10.

Another trend is to fund larger projects, and consequently fewer of them. This is witnessed in the general trend to allocating a greater portion of Divisional R&D budgets through SIP/SUP projects. Apart from the really small grants for organising a workshop or getting abroad, the duration of a project is about 2-4 years (PhD projects are 3 year) and about 0.5 MNOK. SUP/SIP funding, which is seen as an attempt to create capacity within a university or institute, supports research teams for about 3-5 years, at between 1-3 MNOK a year. Analysis of the FORISS database indicates that the mean size of the projects has increased from 713,027 NOK to 964,273 and the median from 162,911 to 500,000.

This trend towards distributing research funding in larger and larger 'chunks' is very important for administrative costs. Our work with other national research funding agencies and the European Commission has revealed that agencies that distribute their funds in small chunks tend to spend a much greater proportion of their overall budgets on administration. **Exhibit 12** below demonstrates this scale effect.

Exhibit 12 – Scale Effects in Administrative Costs



Source: James Stroyan and Erik Arnold, *Comparative Study on Administrative Burdens and Rules of procedure between the EU Research Programmes and those of the Individual Member States*, Strasbourg: European Parliament, 1999

While we do not have enough data points to say what RCN's administrative costs should be, it is clear that one way to reduce them is to fund fewer, larger projects.

Another example of reduction of workload is that NT has been able to reduce the number of applications for sabbatical leaves by making agreements with the universities. Previously, RCN/NT received applications from researchers who were not sure yet whether they were selected by the faculty to have a sabbatical. It appeared quite often that when the application was granted, researchers were not selected by their universities and the grant was not used. Now NT leaves selection of sabbaticals to the universities and contributes to the financing of it.

In order to make RCN more efficient in management of project applications and monitoring of projects, the Executive Board has decided to set aside 15 MNOK to develop a full electronic project management system. Through that system, the application review and selection process as well as the monitoring and reporting of projects can be done fully electronic. The whole process is set up as a separate project, steered by a steering group with the director of Organisation and Finance Division and two research division directors and two project leaders from Organisation Development and the IT department. The project leaders are seconded by a project group with representatives from each division. For specific subtasks small expert group (which may also include external people) are set up. It is likely that the development of the system will stimulate the development of project management procedures. The project stresses that the development of both standardised and different procedures should take on an overall perspective and reach an optimal set of funding instruments adapted to external and administrative needs, rather than being developed primarily on the basis of divisional ownership, tradition and initiative.

However, it still appears that staff still spend most of their time on day to day tasks and have little time to improve. They also notice that with the introduction of the SIP/SUP funding, Centres of Excellence and the new Research Fund, new application processes have been introduced which increase the routine based tasks. These processes now run parallel with separate information streams. Interviewees have indicated that burden of the many strategic, budget and allocation processes that run in parallel is also due to the weak guidance given from the top-level of RCN. It is often unclear what kind of information is wanted.

- **Performance Management**

A MRS (Performance Management System) system is currently under development by the Assistant Director General and the Strategic Planning Division. The system requires staff time to be planned against the annual work programmes of the Divisions, RCN's five point mission statement, RCN-level performance indicators, and Divisional-level change goals. Time should also be recorded against these. It requires (human) resource allocation plans to be submitted every four months by the Divisions, and data should be collected at the Divisional level to show how time has been spent over the preceding period. A relational database is being developed which will hold all of the categories of activity and will gather the 'timesheet' data on a more regular basis.

We found that some Divisions are highly antagonistic towards this system, and choose to largely ignore it, apparently without much difficulty. Other Divisions take it seriously and do everything they can to engage and comply with it. The main problem with MRS from the dissenting Divisions' perspective is that it underplays the importance of the day to day tasks that have to be performed and asks people to plan around 'high-level' objectives which bear little or no relationship to what they actually do. The problem comes in that there are pre-defined expectations as to how people's time should relate to 'targets', which are handed down from above and cannot reasonably be met without compromising other duties that have to be performed. The upshot is that people feel that they can't record their time against tasks they actually perform but have to 'pretend' to spend most of their time dealing with 'change processes'.

The MRS system is important because it exemplifies a number of struggles currently existing within the organisation. MRS encompasses many aspects of good practice, and implies an important shift in RCN's primary function away from research funding administrator to research policy leader. It seeks to assist the organisation in planning and managing its human resources. It seeks to move RCN from thinking in terms of tasks to thinking in terms of objectives and results. It seeks to ensure that it gathers data which will help it to focus more on what it is trying to achieve as an organisation, how it will deploy its resources in order to get there, and how much progress it is making. All of these things are inherently sensible, and arguably encompass much of what RCN should be trying to do. However, it is being introduced into an environment where those who have to use it have little or no time to engage with it, and who feel that it pushes them to spend more time chasing objectives that are simply not attainable within the current context of sectoral Ministries and Institutes, earmarking of research funds, and the need to ensure that all interest groups are satisfied and fully represented.

• **Conclusions & Recommendations**

The council was established in 1993 in order to improve the co-ordination between funding of basic and applied research, the co-ordination between the different sectors and disciplines, and to develop and co-ordinate national research policy. However, the formation of a unified Council has not been accompanied by a similar rationalisation within the structure of the Ministries or within the structure of the research community itself. Historically, sectoral ministries channelled funds for infrastructure and research through sectoral research councils, which in turn allocated these funds to sectoral research institutes. We have found that in many respects, this situation remains unchanged except for the fact that the sectoral research councils have been turned into sectoral ‘divisions’ within a unified council.

Furthermore, whilst Norway is a small country, there remains a political will to ensure that all ‘parties’ within the research community are represented. This political imperative means that RCN must support, and be seen to be supporting, all scientific disciplines and industrial sectors. In some cases, the Council must also strive to maintain an appropriate balance in terms of demographic considerations, ensuring that geographical regions, peoples and genders are adequately represented. RCN has not been able to overcome the constraints imposed by high levels of fragmentation both upstream and downstream, and the requirement to function in a largely ‘non-discriminatory’ fashion. These constraints seem to have diluted the extent to which RCN can provide a lead in terms of science policy, why it has difficulty translating its own Divisional strategies into real actions and achievements, and why attempts at effective integration and cooperation across Divisional boundaries appear weak.

However, RCN continues to strive to develop and improve the way it functions within the limitations imposed by external forces. Below we set out our main conclusions and recommendations in relation to the three elements of internal functioning addressed in this report, namely research management, strategy development and internal processes.

• **Research Management**

Certain aspects of the budgeting process, in particular the situation whereby individual research divisions ‘compete’ with each other on an annual basis for additional funding, has historically undermined parallel efforts to improve cooperation and co-ordination within RCN. Recent moves to improve this situation - through improved ‘top-down’ direction as to where additional funding should be deployed coupled with explicit requests to the Research Divisions to come forward with joint proposals - appear sensible.

- **We recommend that RCN should continue to strengthen this ‘directed’ approach towards the (internal) budgeting process. Proactive efforts to strengthen cooperation across Divisions by prioritising joint initiatives should also be continued and strengthened.**
- **In addition, the process of arbitrating between competing requests from Research Divisions should be made more transparent, with reasons for**

acceptance/rejection of all ‘new’ funding sought being clearly set out in the Draft Priority Document.

Earmarking of research funding for specific research fields is common practice within all research funding agencies. However, the process as organised within the Norwegian research funding system appears, at least in some cases, to go down to a level of specificity not witnessed elsewhere. Of more concern is that earmarking sometimes relates to specific institutes, geographical regions, and so on. This can create problems for research administration and causes strategic (relevance) and quality considerations to be disrupted by political concerns.

- **RCN should seek to negotiate with Ministries concerning earmarking practices, ensuring that these are linked more to clear research policy priorities and less to political considerations**

As things stand, the idea of a research programme as a ‘strategic, goal-oriented, co-ordinated and time-limited research effort to generate new knowledge or competence within a defined field (subject or branch)’ remains underdeveloped. We found little evidence to suggest that there are clear supporting arguments as to why specific efforts (programmes) were needed in specific areas, nor why the scale and duration of the effort is appropriate to the programme goals. Programme areas and allocations tend to follow historical, sectoral lines, and are only weakly related to the current strategies or research policies.

- **Programme objectives, scales and durations should be more closely related to research strategies, with more attention given to what research results are being sought, how these will be realised, what it will cost and how long it will take. Only then will programmes begin to fit the definition currently employed within RCN**

The programme categorisations (basic, action-oriented, user-controlled) used within RCN do not appear to have any significant bearing on the ways in which the programmes are organised or managed. That is, programme definition and implementation procedures do not vary by ‘type’ of programme, but rather according to the personal preferences of the responsible Research Division or programme board. Whilst there is scope for employing a range of different processes in the ways in which programmes and other categories of funding are managed, such processes should vary according to the nature of the initiative, not the personal preferences of those who operate them. Although the Doksy specifies elements of good practice to be observed, this aspect of RCN’s functioning urgently requires overhaul and rationalisation. Clearly defined appraisal and selection procedures, optimised according to the defining features of the programme to which they relate would help to reduce administrative complexity and improve transparency of decision-making processes.

- **RCN should seek to develop a limited number of alternative procedures for the appraisal and selection of projects, and give direction as to which are appropriate for which circumstances (for example, a two-stage process should be employed within programmes where there are very high application to acceptance ratios)**

- **In developing this ‘toolbox’, RCN should restrict itself to a limited (~4) basket of options for each aspect of the process, and should cover in more detail issues such as who conducts the appraisal, what appraisal criteria and scoring systems are employed, how proposals are sorted into ranked order, how relevance considerations are factored in, how decisions should relate to appraisal data, and so on**
- **We also recommend that the Divisions Boards assume responsibility for deciding which of the ‘standard’ appraisal and selection procedures are most appropriate for each of the programmes they oversee. Programme Boards and applicants should then be briefed accordingly, such that the procedures to be employed are transparent and unambiguous**

The role of ‘relevance’ considerations in the appraisal and selection of projects is not clearly formulated. In some cases relevance assessments relate to a proposal’s ‘fit’ within a programme or prioritised area rather than to its ability to contribute to a programme’s objectives. The influence of Ministerial earmarking in the selection process is also unclear, leaving RCN open to challenge that certain selection criteria are not made explicit to researchers before they apply.

- **We recommend that project appraisal and selection processes give more weight to consideration of how, and to what extent, projects meet programme objectives, and that procedures for assessing project ‘relevance’ are formalised and strengthened**
- **We recommend that RCN clarify how ministerial earmarking influences the appraisal and selection of research proposals**

Timescales between the submission of proposals and decisions being relayed to applicants are excessively long. The operation of a fixed deadline for applications in mid-June, coupled with a budgetary process in which finances are not agreed until December, leads to a situation whereby applicants wait some 7-8 months for a decision. This seems excessively long by international standards, and places a question mark over the appropriateness of setting a June 15th deadline.

- **RCN should investigate ways to reduce the time taken to inform applicants as to whether their application has been successful**

As with project appraisal and selection processes, programme planning strategies and processes vary by Division, with little logical structure behind such differences. Again, Doksy sets out general guidelines, but there is scope for improved utilisation of standard programme planning tools that have good precedence in other national research councils.

- **RCN should develop its programme planning processes and consider adopting ROAME or alternative methods. This would strengthen thinking about why it is appropriate to act in a particular area, what the objectives of the programme should be, on what basis project proposals should be**

appraised and selected, and how programme progress should be monitored and evaluated

- **Strategy Development**

There are several initiatives within the Council to improve strategies at both the Divisional and Council levels. Currently, every division seems to follow its own approach, although everyone includes some consultation with the other divisions. While differences in strategies are justified given the differences in the (implicit) missions of the divisions, current practice implies that there is little strategic learning across divisions, and a risk of diverging strategies. This is reinforced because the Strategic Planning Division appears not to be involved in coordinating and supporting strategy development at the divisional level.

- **We recommend that the Strategic Planning Division plays a stronger role in supporting strategy making at divisional level and in stimulating cross-divisional learning in the development of strategies. In particular, the new priority areas could serve as an entry point for improved co-ordination of divisional strategies**

Although each of the strategic processes that the Research Divisions develop have some value they also seem to rely very much on consultation with the usual bodies and people with whom RCN interacts. So the ones that are involved in these processes, are also the ones with which RCN interacts to run the procedures, especially the Ministries and the Programme Boards.

- **We recommend that RCN include in its strategic processes greater efforts to systematically engage other actors in the process, especially societal groups, foreign experts and competence centres, in order to bring different perspectives and competencies to bear**

Evaluation practices are generally not well developed within RCN, though some good examples exist. There is a sensible evaluation strategy but this has never been implemented. Given the vital role played by evaluation in delivering systematic feedback and learning, this aspect of RCN's internal functioning needs urgently to be strengthened.

- **We recommend that RCN take renewed steps to implement its evaluation strategy. A starting point could be to begin evaluating research programmes and develop evaluation policies for the implementation of current RCN strategic priorities.**
- **We recommend that RCN increases its role in disciplinary evaluations, and develops into the natural agency for such evaluations in Norway - also in the non-NT areas. This implies that it also builds up internal capacity for organising these evaluations**
- **We recommend that RCN is given the opportunity by the respective ministries to use the institute evaluations in its funding policy**

- **Development of Internal Processes**

Biotechnology has developed as a model in RCN for coordinating cross-divisional areas. Although clear progress has been made in this area in terms of strategy deployment and co-ordination, it is not evident that the same model can be used for other areas. RCN now has prioritised areas - Marine, ICT, Medicine and Health, Energy and Environment - which are arguably in need of more concrete and shorter term forms of strategy making and implementation, which will require more top-down co-ordination.

- **We recommend that RCN retain the current infrastructure for co-ordination of biotechnology**
- **We recommend that for each of the priority areas RCN considers explicitly what the best way is to co-ordinate that area, including the development and implementation of strategy making**

The cross-divisional differences that remain can be seen as a lack of internal cohesion, but also as the logical consequence of the different roles of the Research Divisions in their different sectors. Because of the good working relations between staff from the divisions these differences are no longer a significant obstacle for RCN to function as one organisation. These good working relations are among the main sunken investments of the current organisation. At the same time we think that the differences could be used more for organisational learning.

- **In order to improve organisational learning and sustain inter divisional staff relations, we recommend that RCN stimulates the exchange of staff between divisions**

There are clear tensions between the six Research Divisions and the Strategic Planning Division. At best, some of the Research Divisions seek to avoid complying with the requests and efforts of the Strategic Planning Division, and at worst they seek to undermine them.

- **RCN needs to readdress the relationship between the Research Divisions and the Strategic Planning Division, if there is to be improved co-ordination and cooperation between these two parties**
- **If MRS is to be successfully implemented within RCN, it will need to be built around what is sensible and achievable from the perspectives of the Research Divisions. It is not something that can be made to work if enforced from the top-down within an environment of suspicion and resistance**

The administrative workload carried by RCN is substantial, and it is not clear that the human resources available are sufficient (in terms of both number and capability) to carry out all of the necessary functions to a high quality. Recent efforts to control administrative load by rationalising the number of programmes (units) to be managed and increasing the average size of projects are helpful, but can not be carried on indefinitely. If RCN is to continue to face staff cuts, it will have to find ways to supplement its administrative resource or reduce its overall workload.

- **We recommend that in addition to increasing the size of the project awards, RCN investigate alternative ways in which to reduce administrative workloads. Improved co-ordination and sharing of practices should help, as should reducing the number of different practices employed within (and hence complexity of) the project appraisal and selection process**
- **If staff cutbacks continue, RCN should seek to recruit additional temporary administrative resource and fund this from the R&D budgets. Should this situation prevail, more standardised and better-documented procedures will be needed in order to facilitate rapid training of new staff**

Heavy workloads create additional problems within RCN, which also need to be addressed. If people struggle to find time to perform all of their day to day functions, it is difficult to cause them to undertake new or additional tasks, and aspects such as training tend to suffer. If RCN is to improve its processes, increase organisational learning, and become more strategic and results driven, it will require a certain amount of (additional) time and space in order to do this. Current workloads leave little or no time to develop and improve.

- **We recommend that wherever new initiatives or exercises are to be undertaken by or within RCN, it ensures that there is sufficient time and resource available in order to carry out these activities**