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# Evaluation of the Research Council of Norway

**Background Report No 3. Ministry Steering of the Research Council of Norway**

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Technopolis Group, August 2012

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# Summary

This report addresses the steering relationship between ministries and the Research Council of Norway (RCN). We focus on five ministries.

In theory, the relationship between principals and agents involves significant risks to the principal, owing to the information asymmetry between them: in the detail, the agent tends to know more about what is being done than the principal and therefore has various opportunities to cheat. High levels of trust between principals and agents and the use of clear agreements about objectives can reduce these risks. A multi-principal agency has a special problem of trust, in that principals do not want 'their' resources diverted to serve the interests of other principals. There is a risk that, in order to prevent this, they 'over-steer' the agent and reduce its effectiveness. The Fund for Research and Innovation provided an important opportunity to counteract this tendency to lock-in by making available 'strategic' resources that were not tied to the short-term budgeting process or to sector interests. A line in KD's budget that has the same strategic intent has now replaced the Fund.

Our interviews and review of documents suggest that the steering processes between RCN and individual ministries are cordial and based on trust – more so than was the case 10 years ago – and some ministries have increased the proportion of their research expenditure that they channel through RCN as a result. The dialogue appears to be more two-way than before. It is difficult to generate hard numbers about the level of detail in the ministries' letters of instruction, but we saw no strong upward trend. While detail tends to lock RCN in, the ministries do not uniquely cause it – RCN also has an interest in detailed instructions that commit ministries to working through it. Unlike in some foreign systems, the 'unit of analysis' in the steering dialogue tends to be programmes or other activities rather than higher-level objectives. Thus, while the new MBO system represents an ambition to steer at a higher level, the real negotiations remain activity-based. RCN has developed a practice of 'selling' multi-ministry programmes as a way to coordinate at this level so the ministries are increasingly buying into joint programmes

Steering at the activity level involves a risk of detailed interference by ministries at the level of selecting individual projects or steering the details of individual programmes. However, we saw no evidence that this is the case – rather, ministries tend to maintain a greater distance from programme committees than before. Where ministries need to be more involved at the project level, they are likely to do this through their captive research institutes. By implication, they see RCN as the appropriate arena for competitive funding.

The relationship with KD has an importance that goes beyond ownership. KD, the Fund and the budget line that has replaced it represent the major opportunity to tackle systemic failures such as the need for restructuring, capacity building and research that falls into the 'grey zone' between ministries. The nature of that relationship must also in part depend upon an understanding about the degree to which sector ministries have responsibility for basic research of relevance to their own sector and therefore how 'wide' the sector principle is held to be.

## 1. Introduction

The evaluation of the Research Council of Norway (RCN) is organised in a number of Work Packages (WP). This report contributes to WP2, which focuses on the way RCN is governed internally and externally, how it is organised (and re-organised) and the institutional boundaries between on the one hand RCN and on the other Innovation Norway and SIVA.

This report addresses the steering relation between the ministries and RCN.

### 1.1 Purpose

The purpose of this report is to map and analyse the ministries' governance and steering of RCN. The report mainly focuses on the five largest contributors to RCN:

- Ministry of Education and Research
- Ministry of Trade and Industry
- Ministry of Petroleum and Energy
- Ministry of Health and Care Services
- Ministry of Fisheries and Coastal Affairs

The report primarily concerns the ministries' strategies for research and innovation, the processes and effectiveness of the ministries' steering of RCN, the extent to which RCN adds value by coordinating ministry needs into larger cross-cutting programmes and activities, and RCN's role as a strategic advisor to the ministries. The report also reviews the ministries' views on the new 'management by objectives' (MBO) system and gives an overview of the process that leads up to an allocation letter.

In addition to the ministries mentioned above, the report has also looked into the remaining ministries' views primarily on the role of RCN as a strategic advisor to the ministries, and the ministries' views on the MBO-system. The report covers six of the remaining ministries:

- Ministry of Labour
- Ministry of Justice and Public Security
- Ministry of Local Government and Regional Development
- Ministry of Agriculture and Food
- Ministry of the Environment
- Ministry of Transport and Communications

Two ministries (Ministry of Finance and Ministry of Government Administration, Reform and Church Affairs) did not want to participate, and three ministries (Ministry of Children, Equality and Social Inclusion, Ministry of Culture and Ministry of Foreign Affairs) did not respond to the inquiry.

### 1.2 Methods and material

The report is based on a mix of document analysis and interviews. The following sources have been used:

- Annual reports of RCN 2003–2011
- Allocation letters from the ministries to RCN 2003–2010

- Budget proposals from the Government to the Parliament ('Stortingsproposisjon nr. 1') 2004–2012<sup>1</sup>
- Interviews with representatives of the ministries
- Interviews with representatives of RCN, responsible for contacts with each of the five key ministries

The interviews with the five key ministries were carried out face to face in February and May 2012, and the interviews with the other ministries were mainly conducted via telephone in June 2012. The interviewees at ministries were typically Heads of the ministries' (equivalences to) divisions for research and innovation. In one case two other officers at the ministry were present. The interviewees at RCN were responsible for contacts with each of the five key ministries. Before the interviews with the five key ministries a background report based on a first analysis of the documents was compiled for each ministry. The background reports were sent to the interviewees and served as a basis for the interviews. After the interviews the background reports were revised and extended, and once again sent to the five ministries for comments before they were included as chapters in this report.

A significant part of the report is based on interviews with officials at the ministries, as we indicated in our proposal would be our approach. Formally, therefore, the information we obtained in this way is personal opinion and does not necessarily reflect a formal position of the respective ministry.

### 1.3 A theoretical perspective

The steering relationship between ministries and research councils is conventionally discussed in principal-agent terms<sup>2</sup>. Principal-agent theory applies where an actor (normally an economic actor) needs to have something done but lacks the knowledge or resources needed and therefore engages an agent to do it, for example asking a dentist to cure a toothache. In the narrow perspective of economics, the principal-agent relationship arises because of 'information asymmetry': the agent knows things that the principal does not. As a result, the principal is faced with the possibility of 'moral hazard' – the agent may act in his own interests, not in the interests of the principal – and 'adverse selection' – the agent may choose to do the wrong thing, as when a research council does not choose the best projects to fund.

Research councils involve a special case of principal-agent relationships where there are three interacting levels. At the top, the ministry acts as principal to the research council, giving it instructions and money to use in following those instructions. In this paper, our interest is mainly in this higher-level principal-agent relationship.

However, the research council in turn spends the money on projects, where **it** is the principal and researchers the agents. In order to distribute the money in a way that is seen as legitimate, the research council has to use scientists – the beneficiary community – to make quality judgements. It therefore becomes dependent upon the beneficiary communities in order to do its job<sup>3</sup>. Indeed, in some systems (eg Sweden), the research councils are actually **governed** by the beneficiary community, which elects the members of the councils. Especially in small countries like Norway, the influence of the local research community has systematically been reduced through the use of foreign peer reviewers who effectively act as proxies for the local research community but who in principle have no personal interest in specific funding decisions. A key consequence of the important role the research community

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<sup>1</sup> Budget proposals for 2003 were not available

<sup>2</sup> Arie Rip and Barend van der Meulen, 'Science policies as principal-agent games: institutionalisation and path-dependency in the relation between government and science', *Research Policy*, 27, 1998; Dietmar Braun and David H Guston, 'Principal-agent theory and research policy: an introduction', *Science and Public Policy*, 30 (5), 2003; Elizabeth Shove, 'Principals, agents and research programmes', *Science and Public Policy*, 30 (5), 2003, 371-382

<sup>3</sup> Dietmar Braun, 'Who governs intermediary agencies? Principal-agent relationships in research policymaking', *Journal of Public Policy*, 27 (8), 1993

plays in research councils is that they effectively have to accept a strong role for peer review in project selection, so that the research community itself chooses what projects to fund. This logic is strong in 'basic research' funding, such as that provided by RCN's Science Division, and weaker in innovation-related projects where other stakeholders are important in project performance.

The delegation styles used between ministries and research councils have evolved over time. 'Blind delegation', where the decisions about how to use the money are simply left to the council worked in many places until the 1970s, when the 'social' contract with science started to change and state became much more interested in understanding the results of research and ensuring they were economically and socially useful. From that point, ministries have increasingly tried to govern science using incentives and performance contracts, the latter in line with current thinking on the so-called 'New Public Management'<sup>4</sup>. However, effective governance appears to require a degree of decentralisation and use of local as well as central strategic intelligence. Effective governance styles rely increasingly on a degree of empowerment – giving the agent sufficient freedom to innovate and to invest in a class of solutions rather than individual potential solutions<sup>5</sup>. This allows agents to learn and add value to the instructions of the principal through programming. Correspondingly, if the agent is not empowered it is difficult for it to innovate and quickly shift resources to support emerging ideas and risky research or to maintain sufficient diversity in the system to respond to emerging problems<sup>6</sup>. Research funding principals' market power as monopsonists creates strong incentives for agents to conform with their wishes, further tending to lock in the steering relationship. Using RCN in the year 2000 as a case in point, van der Meulen argues that having multiple principals causes further lock-in, as the principals strive to make sure their money is spent on 'their' research needs<sup>7</sup>.

Empowerment relies in turn on trust and a level of shared values and social ties<sup>8</sup>. The risk of moral hazard and adverse selection is expected to reduce where these contextual factors are in place.

#### 1.4 Ministry steering in the previous evaluation of RCN

This brief chapter offers a summary of the main challenges for ministry steering in the evaluation of RCN in 2001. The main challenges were

- Ministries were too prone to 'micro-manage' RCN, most notably by earmarking allocations to RCN in order to protect them from the interests of other ministries – thus, although they all recognised the need for a more holistic role of RCN they thereby prevented RCN from taking that role
- In relation to the former point, the ministries found RCN inflexible and largely unable to create cross-cutting initiatives – in part due to the way RCN was organised internally
- Few ministries distinguished between short-term and long-term research needs – there was a lack of clarity about the ministries' roles as patrons of research and customers for research, and there was a lack of mechanisms for research foresight
- Formal structures for research and innovation issues were underdeveloped in most ministries. Few ministries had developed research strategies, and few had specialised divisions or other distinct organisational arrangements for research and innovation

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<sup>4</sup> Dietmar Braun, 'Lasting tensions in research policy-making – a delegation problem', *Science and Public Policy*, 30 (5), 2003, 309-322

<sup>5</sup> Elizabeth Shove, 'Principals, agents and research programmes', *Science and Public Policy* 30 (5), 2003, 371-381

<sup>6</sup> Benedetto Lepori, 'Coordination modes in public funding systems', *Research Policy*, 40 (3), 2011, 355-367

<sup>7</sup> Barend van der Meulen, 'New roles and strategies of a research council: intermediation of the principal-agent relationship', *Science and Public Policy*, 30 (5), 2003, 323-336

<sup>8</sup> Lepori, *Op Cit*

- On the positive side, the ministries found RCN staff competent and the formal and informal dialogue appeared to function well. The larger ministries (in terms of allocations to RCN) were on more or less all points more positive than the smaller ones, for example on the quality of dialogue with RCN and RCN reporting. The smaller ministries generally felt that their interests tended to disappear when RCN tried to combine their allocations with allocations from other ministries

A key overall conclusion of the 2001 evaluation was that steering by the ministries left RCN with insufficient ‘strategic’ resources to enable it to act as a change agent in its own right, so as to add value to the instructions of the ministries through coordination and supplementary efforts.

The Research and Innovation Fund (originally the Research Fund) had been set up in 1999 to fund long-term basic research and research in the ‘grey’ areas between sectors<sup>9</sup>. KD allocates the Fund to various purposes laid down by government. The device of a Fund was used partly in order to have a funding mechanism that is more patient and takes a longer view than the annual state budgets. When it started to produce income in 2001, the Fund created the kind of strategic space that was needed and it was instrumental *inter alia* in enabling RCN to fund the Centres of Excellence Schemes SFF and SFI, which have been very important interventions aimed at restructuring and improving the performance of research institutions.

As the capital grew, the government increasingly used the Fund for additional purposes. Indeed, some tranches of the capital the government injected into the fund had specific purposes, eg to fund petroleum research. The Fund was broadened to tackle aspects of innovation and increasingly some of its resources were spent elsewhere than at RCN. Newer purposes, including paying the Norwegian contribution to the EU Framework Programme and more recently to the European Institute of Technology. In response to the reduction in income from the Fund caused by reduced interest rates during the current economic crisis, the government abolished the Fund in 2012, replacing it with budget lines for research and research infrastructure in KD’s budget from that year.

## 1.5 Outline of report

The core of this report comprises five chapters on the ministries in focus; one chapter per ministry. To enable efficient reading and comparisons between ministries the chapters are all laid out in the same way, with the same headlines and figures in each chapter. After those chapters, there is a chapter on the other ministries. The report ends with a discussion in which the main findings are summarised and related to the findings in the previous evaluations.

The five ministry chapters have the following structure: First, a description of the context. Second, the budget allocations to research and innovation are presented. Third, the ministries’ strategies are outlined. Fourth, the communication between the ministries and RCN are reviewed. The fifth sections concern the instrument RCN uses to further distribute the funding of the ministries, and the ministries’ roles in the programme committees. In the final sections the ministries’ views on the preferred roles of RCN in the national and international contexts are presented. The chapter on the Ministry of Education and Research also includes a section on its sector research; that section is placed between section four and five as of above.

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<sup>9</sup> St Prp Nr 67 (1998-99)

## 2. Ministry of Education and Research

### 2.1 Context

The Ministry of Education and Research (KD)<sup>10</sup> is the largest funder of the Research Council of Norway (RCN). This is because KD is responsible for the education and research sector. As part of that responsibility KD also allocates block funding for research at the universities and university colleges, the Regional Research Funds in Norway, international activities such as the European Framework Programme. About half of the public funded research in Norway is funded via KD. In addition, KD has administrative responsibility for the Legal guidelines for block funding to national research institutes<sup>11</sup>, i.e. the basic steering document for the research institute sector. KD also has direct responsibility for a number of research institutes directed towards the social sciences.

The responsibilities of KD include four roles

- Funder of basic research, both via block funding to universities and university colleges and via e.g. RCN
- Funder of sector research, both within its own sector and as co-funder of e.g. RCN programmes directed towards other sectors
- 'Manager' of the Norwegian research system, for example by preparing and executing political decisions on distributions to different types of actors in the national research system
- Key coordinator of the research system by being a central actor in – most notably – the national budget processes for research, national initiatives in research, steering of e.g. RCN, and Norwegian participation in international research collaborations, and various instruments KD uses in its funder- and manager roles above

KD funds RCN in three main ways:

1. Funding for basic and user-oriented research in all scientific fields
2. Funding for RCN administration; RCN is a public agency in KD sector
3. KD also has sector responsibility for research on education and research; a small field

Part of the KD allocation for basic and user-oriented research comes from Fondet for forskning og nyskaping (The Fund for research and innovation, FFN) was a construction to ensure stable funding to research and innovation in the long-term, but was terminated in 2011. Each year the Government channelled capital to the FFN, and each year the Government via KD used the returns for research and innovation activities, either funded through RCN or channelled directly to research institutions. A fundamental idea behind the use of the FFN resources was to support longer term and broad thematic initiatives and thereby to complement more sector-specific activities. The use of FFN resources changed a bit over the years; the initial thought was to channel all resources to RCN for basic research, but as the returns got increasingly large the government decided to use the resources also for broad, thematic purposes and to distribute resources also outside RCN. Substantial amounts of the returns from the FFN have been used to fund Centres of Excellence programmes (Sentre for framragende forskning, SFF; Sentre for forskningsdrevet innovasjon, SFI) and RCN-led programmes in nationally prioritised areas such as biotechnology, energy, climate, nanotechnology, and seafood. Significant resources have also been used for investments in infrastructure and for (now abolished)

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<sup>10</sup> The ministry was previously abbreviated UFD.

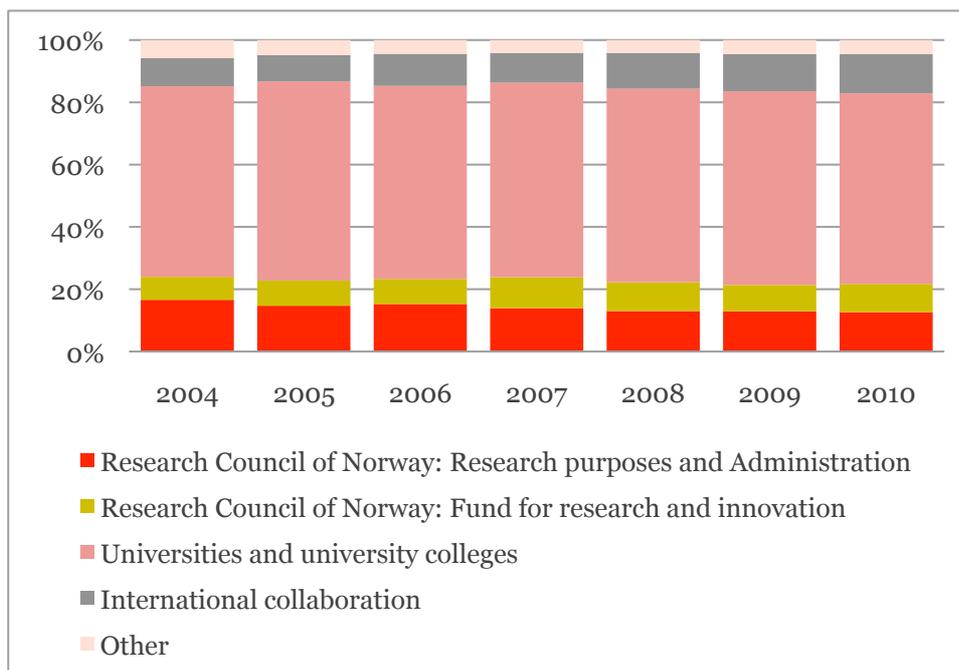
<sup>11</sup> "Retningslinjer for basisfinansiering at statlige forskningsinstitutter"

co-funding of large research donations to universities or university colleges. The FFN was terminated in 2011..

## 2.2 Budget allocations to research and innovation

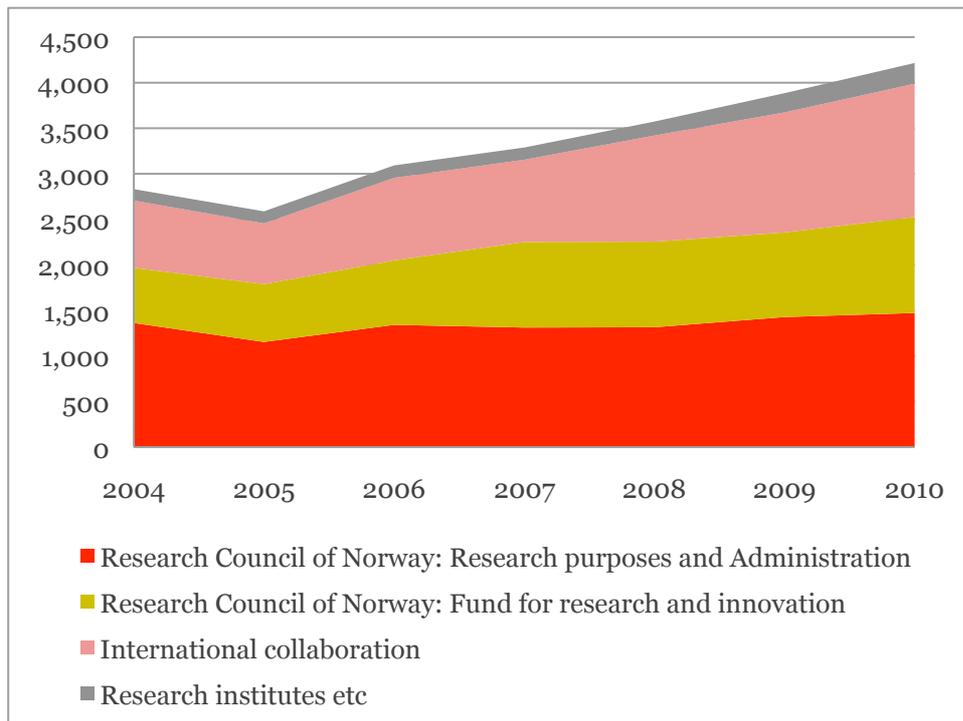
The relative development of KD allocations to research and development between 2003 and 2010 is shown in Figure 1. The figure shows that RCN's share has been stable over the period. The part of KD allocations that comes from the Fund for research and innovation has increased vis-à-vis the KD allocation labelled "research purposes and administration".

Figure 1: KD budget allocations to major categories in research and innovation 2004-2010 (shares)



Sources: Categories Other, International collaboration and Research Council of Norway: Research purposes and Administration are based on Government's annual Budget bills, KD's sector bills, 2004-2010 (Proposals). Category Universities and university colleges is based on FoU Statistikkbanken, NIFU (Government budget appropriations for R&D, primary receiver). Category Research Council of Norway: Fund for research and innovation is based on Allocation letters from KD to RCN, 2004-2010.

Figure 2: KD budget allocations to major categories in research and innovation 2004-2010, except universities and university colleges (MNOK)



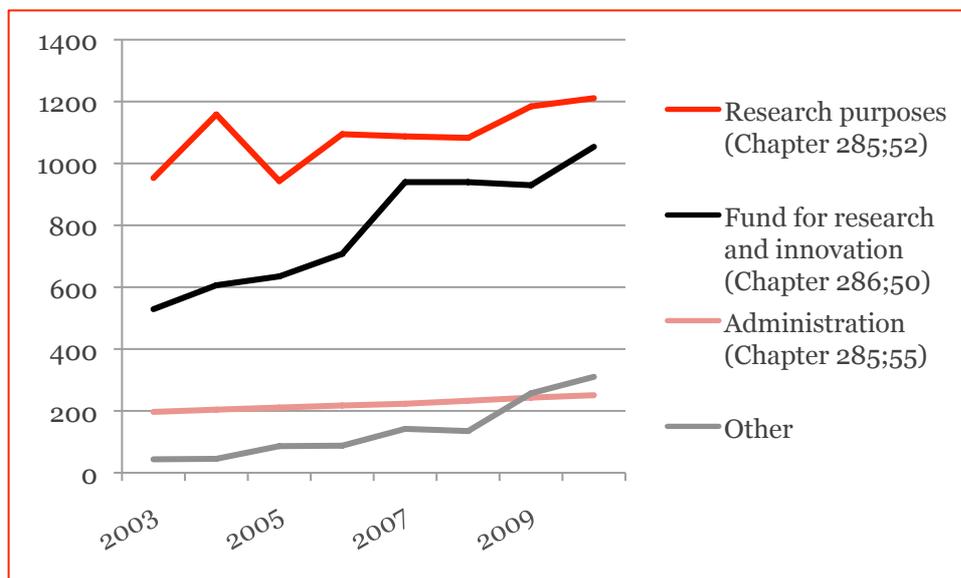
Sources: Categories Research institutes etc, International collaboration and Research Council of Norway: Research purposes and Administration are based on Government's annual Budget bills, KD's sector bills, 2004-2010 (Proposals). Category Research Council of Norway: Fund for research and innovation is based on Allocation letters from KD to RCN, 2004-2010.

Figure 2 shows KD allocations to major categories in research and allocation in absolute numbers. The figure shows that KD budget line funding to RCN labelled research purposes and administration (covering mainly budget chapter 285) has generally been stable over the period. There was a slight increase in 2004 followed by a decrease in 2005 due to changed rules for how KD could use resources in funds.. The allocations increased also in 2009, mainly because of a large temporary allocation to research infrastructure. The KD allocations from the Fund for research and innovation (chapter 286) increased considerably over the period. In 2010 allocations from the fund were about two thirds the size of allocations labelled research purposes and administration.

From 2003 to 2010 KD allocated between NOK 1.7 and 2.8 billion per year to be handled by RCN. That funding was channelled to between four and nine specified types of purposes, as described in the annual allocation letter. Figure 3 shows the three main types and a fourth category – 'Other' – that comprises the remaining ones. The direct allocations for administration did not grow between 2003 and 2010. However, during the same period the expectations of delivery from RCN administration have increased. Additional funding for administration is therefore obtained by 'taxing' programme support. Between 2004 and 2010 the funding for administration had a nominal growth of around MNOK 120. Returns from the Fund grew significantly over time, thus between 2003 and 2010 RCN received a growing share of its resources from FFN via chapter 286;50. The FFN has however also funded other budget chapters and items – for example, in 2011 most of the allocations to research purposes over budget chapter 285 post 52 came

from the fund. Finally, KD gradually spreads its funding on a growing number of categories, which in the figure is reflected in the growth of the category ‘Other’.<sup>12</sup>

Figure 3: Allocations from KD to be handled by RCN, 2003-2010 (MNOK)



Source: Allocation letters from KD to RCN, 2003-2010

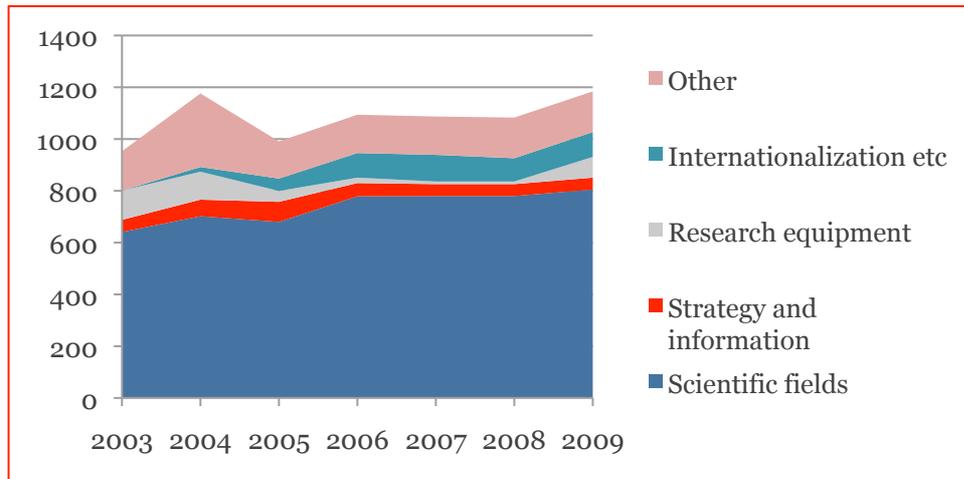
## 2.3 Strategies

### 2.3.1 Themes

Until 2009 KD earmarked all of its funding for a long range of broad thematic purposes. That included funding for five broad scientific fields and funding for other purposes. Since 2010 KD has not done this earmarking. Instead they – at RCN’s proposal – created more room for the SFIs (‘Senters for forskningsdrevet innovation’) and established an infrastructure budget line. Recently KD has also steered added resources to FRIPRO in response to the request of RCN and the universities, which have matched the addition through reallocating internal budgets.

<sup>12</sup> The category ‘Other’ comprises funding to the following purposes: Research institutes etc (2003-2010), Expenses shared by all universities and university colleges (2005-2010), Kindergartens (2007-2010), Quality development in primary and secondary education (2007-2010), Analysis and development (2007, 2009-2010), and Regional fund (2010). The first two categories are the by far largest. Allocations to research institutes grew significantly in 2009 as a result of changes in the basic funding structure of the research institutes. Funding in that category went mainly to research institutes in the social sciences, (Norwegian Institute of International Affairs NUPI, Norwegian Social Research Institute NOVA, Fridtjof Nansen Institute FNI, Nordic Institute for Studies in Innovation, Research and Education (incl predecessors) NIFU/STEP/NIFU STEP, Institute for Peace Research PRIO), and to initiatives to support quality development in the research institute sector. KD also took over the responsibility for basic funding of a couple of smaller (parts of) research institutes from other ministries. The category Expenses shared by all universities and university colleges contains mainly the FORNY and the SHF programmes; the latter being an initiative to support strategic research in the university colleges.

Figure 4: KD funding for research purposes (Chapter 285), per type of purpose 2003-2009 (MNOK)



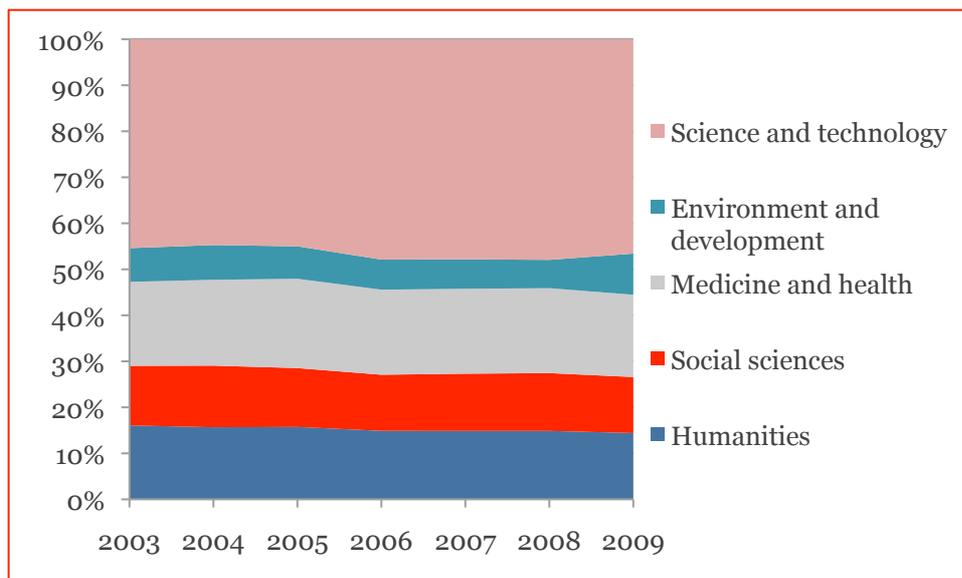
Source: Allocation letters from KD to RCN, 2003-2009

Figure 4 shows the distribution of earmarked resources for the different types of purposes.<sup>13</sup> The shares of the various themes have remained relatively unchanged during the period, with most funding being channelled to 'Scientific fields', which by far makes up the largest share. The category 'Internationalisation etc' mainly concerns stimulation to make Norwegian researchers participate in EU projects. The category 'Other' is mainly made up by allocations to FUGE, Recruitments (in the marine, aqua- and agricultural fields) and Small-scale support to universities and university colleges (intended to support administration of research).

Figure 5 shows how the shares allocated to the various scientific fields changed until 2009. The balance between scientific fields remained almost unchanged. 'Science and technology' has always dominated with about half of the resources. About 30 per cent has each year been allocated to the 'Humanities' and 'Social sciences'. Allocations to 'Environment and development' increased slightly after the national agreement on climate ('Klimaforliket') in 2008.

<sup>13</sup>'Scientific fields' include allocations to humanities, social sciences, medicine and health, environment and development, and science and technology. 'Internationalisation etc', 'Research equipment' and 'Strategy and information' were single specified items throughout the period. 'Other' includes all other items, some of which were very small. Allocations to FUGE, Recruitments in the marine, aqua and agricultural fields, and small-scale support to universities and university colleges for research administration were the largest items in 'Other'.

Figure 5: KD allocations to scientific fields 2003-2009 (per cent of total)

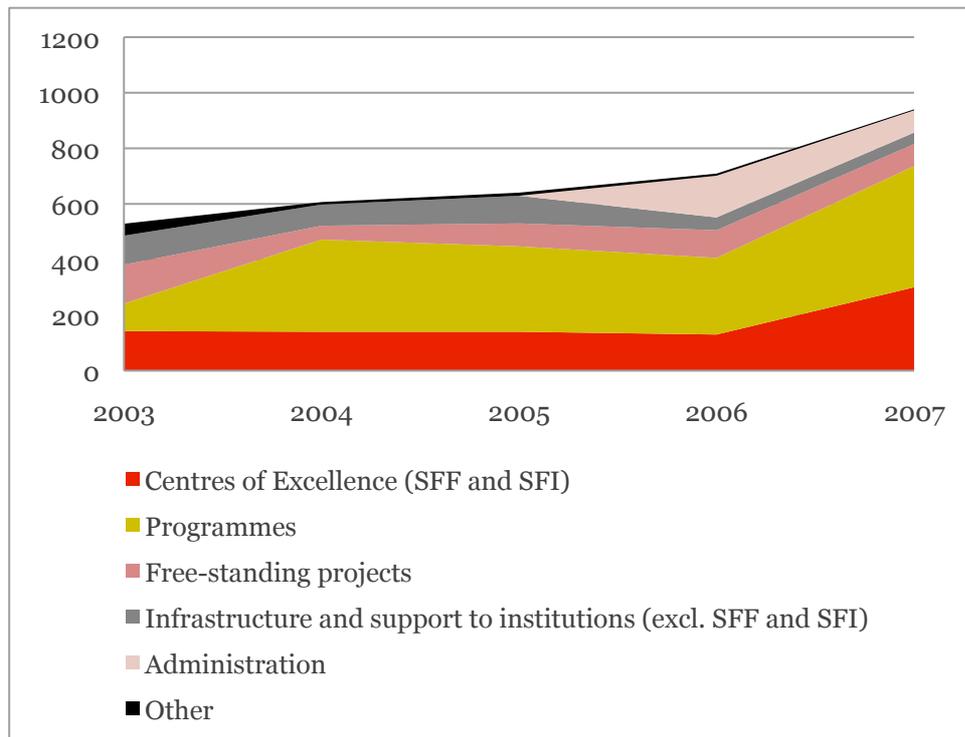


Source: Allocation letters from KD to RCN, 2003-2009

Each year RCN reported how funding to each scientific field had been combined with funding from other ministries to make up programmes and projects with different thematic orientations. Allocations from KD were normally very dominant in ‘free’ projects in all fields. Programmes were normally dominated by funding from other ministries although KD funding to programmes was substantial.

Allocations from KD via the Fund for research and innovation(Chapter 286) has always been earmarked for broad themes. The earmarking to different categories is shown in Figure 6 and Figure 7. The categorisation changed between 2007 and 2008; that is the reason why we present two figures instead of only one. Since Centres of Excellence – Sentre for fremragende forskning (SFF) and Sentre for forskningsdrevet innovasjon (SFI) – have throughout the period 2003-2010 been an important initiative funded by Fund resources. For that reason we present Centres of Excellence as a separate category in the figures.

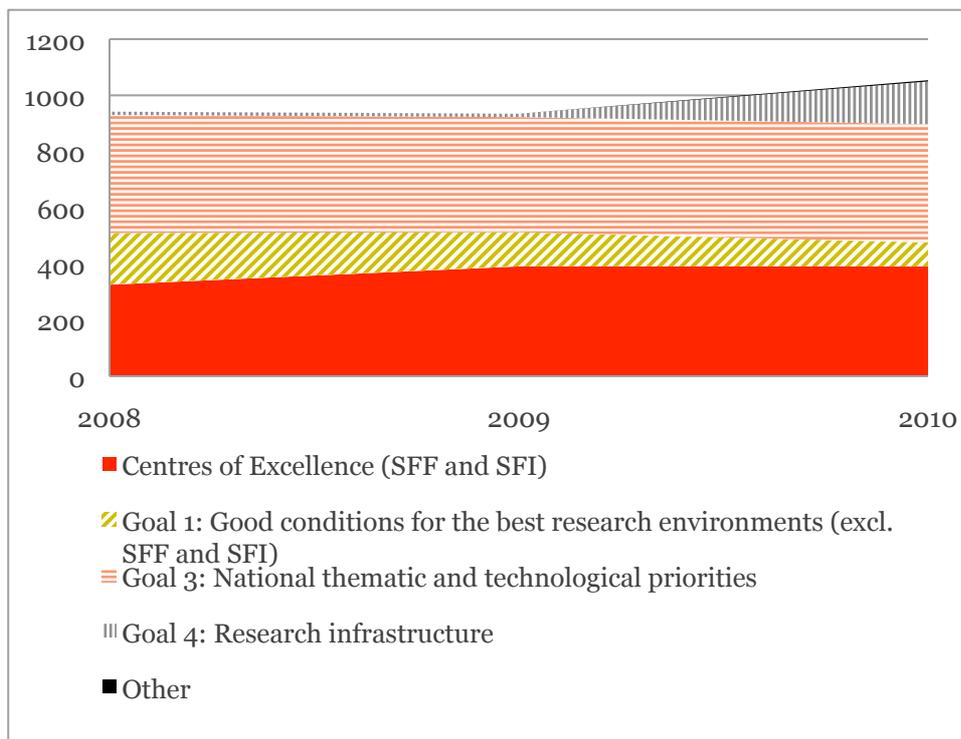
Figure 6: KD funding from the Fund for Research and Innovation 2003-2007, per category (MNOK)



Source: RCN Annual reports 2003-2007

The two figures show that allocations to Centres of Excellence increased significantly during the period. The increase occurred in two steps: a major increase in 2007 when the SFIs were introduced and SFFs expanded, and further in 2009 when the SFFs expanded with another MNOK 45 and SFI with MNOK 20. Funding to themes prioritised in the national research and innovation policies have always been notable. Funding to those areas are most notably included in categories Programmes (2003-2007 and Goal 3 (2008-2010)). Significant resources have also been allocated to research infrastructure – most notably in 2010 – and to high risk basic research carried out by scientifically excellent researchers. The SFFs and SFIs also cover national priorities and support to excellent researchers.

Figure 7: KD funding from the Fund for Research and Innovation 2008-2010, per category (MNOK)



Source: RCN Annual reports 2008-2010

### 2.3.2 National priorities

KD has generally not been particularly detailed on how RCN is to implement national priorities in its allocation letters. With regard to the allocations for Research purposes (Chapter 285;52) the allocation letters typically contain formulations such as "The Research Council shall contribute to follow up the proposals in the strategy for increased research collaboration with North America", which leaves relatively much space for action for RCN.

Broader, thematic national priorities are generally found in the allocations from FFN (Chapter 286;50) where allocations to fields of strategic importance are specified (energy, health, biotechnology etc). Also on this item KD are hands-off in in the allocation letters on how the allocation should be spent within the specific field.

Some national priorities are hard to handle with regard to basic research. For example, the national climate agreement ('Klimaforliket') needs to be implemented through both basic and applied research but since the sector ministries vary in their interest to fund basic research, some of the priorities in the Klimaforliket are difficult to prioritise within a 'hands off' style of governance. We return to this issue of how to fund basic research in the context of thematically specific programmes in the synthesis report.

KD has formal responsibility to act as research coordinator among the ministries, and has for example led the follow up of the Klimaforliket. This is difficult to do, given that KD does not have authority over the other ministries' research budgets, but seems largely to be achieved through discussion. Participation in national research strategy processes and involving RCN is support of these processes is a necessary component of the coordination role. KD has also significantly increased its support to structural instruments for coordination, such as RCN's large programmes and Centres of Excellence.

## 2.4 Communication

### 2.4.1 Allocation letters

Even though basic research is not (financially) the largest part of KD's research funding responsibilities, its unique role in relation to basic research funding means that KD has had consistently to devote a great deal of its attention to it, in the course of steering RCN. KD's responsibility for basic research was reflected in repeated instructions during the first half of the period to increase the share of 'free' or researcher-initiated projects. It was also reflected in occasional instructions – e.g. in 2005 – to pay specific attention to cross-disciplinary research or other fields that were troublesome to fit into programmes etc. KD also repeatedly instructed RCN to ensure that PhD students and post-docs were fully financed and in other ways well supported.

KD has given RCN much freedom to handle the zero growth part of the allocations. However, in cases of increases KD has tended to earmark the extra allocations – most notably to infrastructure and to open projects (FRIPRO).

The instructions reflect the development of a slightly more instrumental view over time, in particular after 2006, in the sense of addressing structural and other systemic needs. This is primarily reflected in the instructions to ensure that the research system fits with the rest of the national innovation system and in the recently introduced MBO-system.

From 2007 RCN was also requested to make sure, together with other ministries, that research results etc become communicated to others, e.g. become visible in media. This should also be seen as an outcome of the intention to better integrate research in the innovation system.

Table 1 presents the number of KD guidelines ('förlinger') per letter of instruction for three years. The table should be read with some caution; it is difficult to define the difference between an instruction and a guideline. The table should therefore be seen as an indication of the development of the level of details rather than as a precise statistics of guidelines. It seems clear that KD has increased the number of guidelines between 2003 and 2007.

Table 1: Number of KD guidelines (international level excluded)

	2003	2007	2010
<b>Number of KD guidelines</b>	16	30	25

Source: Allocation letters from KD to RCN, 2003, 2007 and 2010

#### 2.4.2 Other communication

RCN has a close and continuous dialogue with KD. RCN finds the funding dialogue with KD to be generally less formal than the dialogue with other ministries. KD seems to be happy with the dialogue as well. KD seems however to be very careful not to mix funding dialogue with the also close dialogue regarding its sector ownership of RCN as a public agency.

### 2.5 Sector research on education and research

While KD has a national responsibility for research funding, it has sector responsibility for research on education and research. Research on that sector was until around 2007 relatively marginalised, clearly at RCN and seemingly also at KD; KD had until 2007 never put together a comprehensive research strategy for its sector.<sup>14</sup> At that time KD was unhappy with the way RCN handled research on its sector – KD meant that RCN devoted too little funding and too little management interest, and therefore considered channelling the funding through other agencies than RCN.

However, RCN responded well to the criticism and KD has since then expanded funding to its sector research. The increased attention has meant better applications and higher research quality – which in turn makes it easier to increase the funding. One instrument KD used to highlight the importance of its sector research was to earmark and make visible that part in the allocation letters. KD also complemented the allocation letters with specific and more detailed assignment letters (*tildelingsbrev*).

KD follows its sector research closely. When KD decided to stay within RCN, it was very clear about the level of people it wanted to see in the programme committees. KD has also been explicit about what types of research it wants the programmes to perform: more quantitative, longitudinal, interdisciplinary and international research that aims to fill gaps in under-researched areas. To enable dissemination of research to the wider society RCN has recently initiated a Knowledge Centre in the field, which KD is very happy about.

KD sits on the programme committees, but insists that it does not steer in terms of content. The MBO system is not relevant for steering KD sector research; KD uses the programme committees and informal dialogue instead.

RCN used to play a relatively marginal role as advisor on KD sector, but, especially regarding education research, it is needed, as most other potential partners are beneficiaries of research support. RCN has since around 2009 taken a more active role and the relevant part of KD is increasingly happy with the role RCN plays as an advisor.

In 2007 strategies to support education in kindergartens and at primary and secondary levels were introduced (in total MNOK 34.7). In 2009 the strategy was expanded to include research on types of organised knowledge development; all the way from kindergartens to innovation (in total about MNOK 40).

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<sup>14</sup> The research strategy can be found here: [http://www.regjeringen.no/upload/KD/Vedlegg/Forskning/Utdanningsforskning/Strategi\\_for\\_utdanningsforskning\\_F\\_4250\\_2010.pdf](http://www.regjeringen.no/upload/KD/Vedlegg/Forskning/Utdanningsforskning/Strategi_for_utdanningsforskning_F_4250_2010.pdf)

## 2.6 Instruments

### 2.6.1 RCN instruments for KD funding

Figure 8 shows KDs budget allocations to RCN in 2011, illustrating its coverage of a range of basic research, structural, infrastructural and international activities and separating its normal budget funding from the Fund for Research and Innovation.

Figure 8 Snapshot: KD budget allocations to RCN, 2011

Tabell 1.1: Aktiviteter som KD (inkl Fondet) helt eller delvis finansierer i 2010 og 2011. KDs faktiske bevilgning og finansierungsandel 2011. Mill. kroner.

	Bevilgning 2011	KDs bevilgning 2011	Fond 2011	Sum KD totalt	Andel finansiert bevilgning 2011
<b>Programmer</b>					
Brukerstyrte innovasjonsprogr	980	0	55	55	6 %
Grunnforskningsprogrammer	174	106	12	118	68 %
Handlingsrettede programmer	917	114	61	175	19 %
Store programmer	1 343	114	265	379	28 %
Sum programmer	3 414	334	393	727	21 %
<b>Frittstående prosjekter</b>				0	
Fri prosjektstøtte	522	480	41	521	100 %
Andre grunnforskningsprosjekt	61	57	1	58	95 %
Internasjonal prosjektstøtte	78	24		24	31 %
Andre frittstående prosjekter	94	26	35	61	65 %
Sum frittstående prosjekter	755	587	77	664	88 %
<b>Infrastruktur og inst.tiltak</b>				0	
Basisbevilgninger	885	169		169	19 %
Strategisk institusjonsstøtte	180	122	10	132	73 %
SFF/SFV/FME	578	5	418	423	73 %
Vitensk, utstyr, datab., saml	266	59	276	335	125 %
Andre infrastruktureltak	99			0	0 %
Sum Infrastruktur og inst. tiltak	2 008	355	704	1 059	53 %
<b>Nettverkstiltak</b>					
Systemtiltak	209	19		19	9 %
Internasjonale nettverkstiltak	244	102		102	42 %
Nasj. stimul.tiltak,møteplass	39	23	5	28	72 %
Sum Nettverkstiltak	492	144	5	149	30 %
<b>Diverse FoU-rel aktiviteter</b>					
Inform./formdl./ publisering	73	51		51	70 %
Planlegging/utredn./evaluering	68	28	9	37	54 %
Sum Diverse FoU-rel. Aktiviteter	141	79	9	88	62 %
<b>Disposisjonsfond</b>	-15	2	1	3	-20 %
Sekretariat	43	15		15	35 %
Forvaltning	237	7	60	67	28 %
<b>Total sum</b>	<b>7 075</b>	<b>1 523</b>	<b>1249</b>	<b>2 772</b>	<b>39 %</b>

Source: RCN Annual Report, 2011

Funding from KD needs partly to complement that from other ministries by ensuring there is enough basic research in the system but is also spread over a long range of programmes and to an increasing degree mixed with funding from other ministries, see Table 2. Funding from KD also covers the support to free projects.

Table 2: KD participation in RCN programmes 2003, 2007 and 2011

<b>Year</b>	<b>Number of programmes</b>	<b>Number of programmes in which other min participated</b>
<b>2003</b>	52	22
<b>2007</b>	37	23
<b>2011</b>	33	26

Source: RCN Annual reports 2003, 2007 and 2011

### *2.6.2 KD use of RCN programme committees*

Between 2003 and 2011 KD has been represented in nine programme committees. At present KD is represented in two committees, a relatively low number. Most programme committees are orientated towards thematically steered applied research and towards innovation. In line with its roles, KD tends to avoid doing thematic steering of research (beyond its historical role in making broad-brush allocations among research fields). It certainly is more 'hands off' than most Norwegian sector ministries in this regard.

## **2.7 The role of RCN**

### *2.7.1 National competition*

Throughout the whole period KD instructed RCN to support strong research environments on the basis of evaluations. Only in a small number of very specific cases did KD point out specific organisations or environments to fund. KD also devoted extensive support to open projects. Based on that, it could be argued that KD has been a strong supporter of competition in the research system.

### *2.7.2 RCN in the national innovation system*

KD has tended to use RCN as funder for basic research, structural measures and internationalisation. Throughout the investigated period, KD increasingly emphasised the role of research as a fundamental part of the innovation system. Consequently, RCN was instructed to pay more attention to other parts of the innovation system than basic research.

### *2.7.3 International collaboration*

KD always prioritised international collaboration in its letter of instruction, in particular with the EU. The international dimension was further highlighted in the end of the period, partly via requests to develop collaborations with 'strategic countries': USA, Canada, China, Japan, India, Russia, Brazil, Chile, Argentina and South Africa. Several bilateral collaborations have been organised in specific programmes, e.g. INDNOR for collaboration with India, and CHINOR, for collaboration with China. RCN has also established programmes to stimulate international mobility, e.g. via the Leiv Eriksson programme, and via collaborative agreements with e.g. NSH and NIH in the USA and specific arrangements for bilateral exchanges.

KD is broadly happy with the work RCN does on internationalisation. The balance between the national and the international levels is the most pressing challenge to RCN at the moment; RCN needs to make priorities, they cannot let Norway be engaged in everything – not least on EU-level.

RCN in turn finds the cooperation with KD on international activities to be good. RCN thinks that the research community needs to better understand that EU-funding is an extension of the national investment, rather than something that takes funding from the national level: the proportion of money sent to the EU that comes back via projects has been higher than the budget growth. RCN also finds it problematic that research institutes

do not get full funding from the FPs but only get 75 %. On this point KD has been responsive and has put funding in place to make up the difference.

#### *2.7.4 RCN as a partner for dialogue on research strategies*

KD has frequently used RCN for advice on a long range of general issues, from evaluations to input for strategies. KD appears to regard RCN as a competent and professional partner for dialogue. However, in its steering dialogues, KD has emphasised that it would like RCN to be a bit more active in the public debate; to more often take a clear stand and not try as hard to satisfy everyone's interests. RCN confirms that dialogue with KD is both frequent and productive.

#### *2.7.5 RCN reporting*

KD seems to be relatively happy with the reporting from RCN. However, KD has during the last years had specific meetings with RCN to help RCN improve the annual reports, which KD has not found fully satisfactory. The ministry has in the early part of the period considered here not been particularly demanding with regard to reporting and monitoring in comparison to other ministries, but that has changed to some extent during the last years, mainly with the introduction of the MBO-system, the development of which KD led.

### 3. Ministry of Trade and Industry

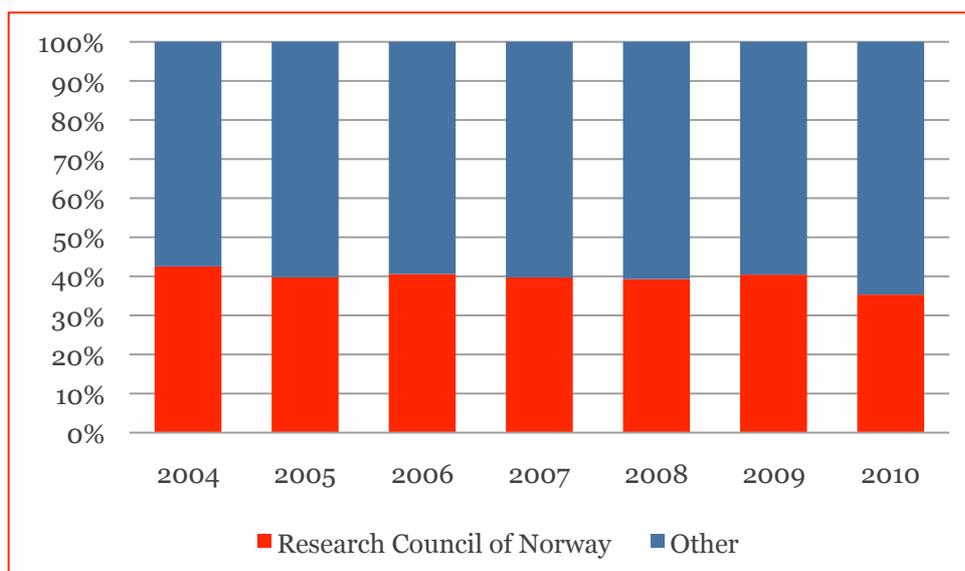
#### 3.1 Context

The Ministry of Trade and Industry (NHD) is an important ministry for research and innovation. NHD budget for research and innovation has throughout the period represented around eight per cent of the government's budget resources for R&D and since 2004 been the third largest of all ministries; only KD and HOD are larger. NHD is the second largest contributor to RCN.

NHD supports industry-oriented R&D and applied research. NHD's overarching goal has throughout the period been to enhance value creation in the Norwegian business sector. In line with that goal NHD has since 2003 described its task as providing 'innovation policy' and not e.g. 'research and development policy'. NHD's basic idea behind its R&D funding has been to create additionality when its support has been combined with company resources. NHD probably has the largest division for research and innovation among all sector ministries. NHD has viewed Innovation Norway and RCN as the two key public actors in their sector.

#### 3.2 Budget allocations to research and innovation

Figure 9: Research Council of Norway's share of NHD budget allocations to research and innovation 2004-2010.



Source: Government's annual Budget bills, NHD's sector bills, 2006-2012 (Financial statements for 2004-2010)

Figure 9 shows the share of RCN in NHD budget allocations to research and innovation.<sup>15</sup> The share of RCN has been more or less stable over the period. NHD has had a broad

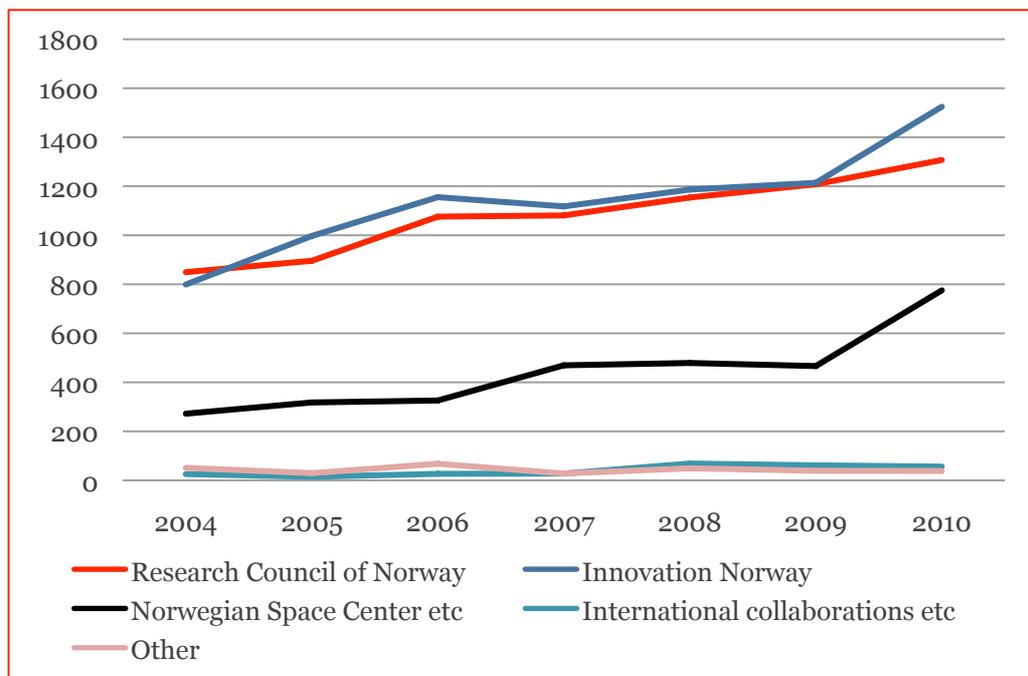
<sup>15</sup> The figures in section 3.2 are based on the budget for R&D as presented in NHD section of the annual state budgets, programme category 17.20. However, all allocations to funds etc listed as budget items 90-99 are excluded. The budget categories included in the figures are (in Norwegian): Norges Forskningsråd, Norsk Romsenter/Romvirksomhet, Forsknings- og utviklingskontrakter, Internasjonalt samarbeid og

definition of research and innovation, which means that a part of the budgets have consisted of items which have not been straightforward R&D, such as support to export. We have in this report sought to omit items that are not straightforward R&D support.

Figure 10 shows budget allocations from NHD to major research and innovation organisations during the investigated period. NHD funding to RCN has grown from about MNOK 800 annually in the beginning of the period to about MNOK 1300 per year in 2009 and 2010. There has been one main increase, in 2006. RCN thus receives a relatively large share of its allocations from NHD. Around 2003/2004, following the introduction of SkatteFUNN, RCN received MNOK 140 less from NHD for the open innovation arena, a major setback for RCN. In 2009, as a government response to the global economic crisis, RCN also saw a significant decrease in its support, although that is not reflected in Figure 10.

The allocations to RCN and Innovation Norway have been roughly equal during the period, except for 2010 when NHD increased allocations to Innovation Norway. In 2010 NHD also increased allocations to space activities considerably, mainly as a consequence of international obligations and an expanded politics to develop northern Norway. The small category for international collaborations primarily consists of support to industry-oriented EU-programmes.

Figure 10: NHD Budget allocations to research and innovation 2003-2010 (MNOK)



Source: Government's annual Budget bills, NHD's sector bills, 2006-2012 (Financial statements for 2004-2010)

### 3.3 Strategies

The current NHD strategies are based on the ambitious white paper on innovation policy from 2008 that the government has presented. In the white paper the innovation policy is

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utviklingsprogrammer, Språkteknologisenter, FoU-prosjekter i næringslivets regi, Bedriftsrettet kompetensoverføring, Norsk Designråd, Miljøtiltak, Ekstraordinære næringsutviklingstiltak, Internasjonale investeringstiltak, Reiselivstiltak/Svalbard Reiseliv AS, Omstillingstiltak, Stotte til skipsbygging, Verdal kommune, Innovasjon Norge, SIVA SF. Not all categories were in use for all years.

focused on the needs of industry and departs from ‘the three pillars of sustainability’ (economic, social, and environmental) established at the United Nations World Summit in 2005.

NHD prioritises User-directed innovation arena (‘Brukerstyrt innovasjonsarena’, BIA), programmes for generic technologies, and applied activities in e.g. the maritime sector. BIA is a large programme initiated in 2005 to which companies may apply for partial funding of R&D projects regardless of branch of industry or thematic area. NHD prioritises BIA to the establishment of numerous dedicated schemes, as BIA is regarded as an very effective prioritisation mechanism.

NHD support to specific areas and themes is less prioritised than BIA, and consists of two types. Firstly, NHD channels funding to basic technologies of relevance to many industry branches (generic technologies); such technologies include for example ICT, biotechnology and materials technology. This is a clear interest to NHD, and it has recently taken lead in developing the national strategy for nanotechnology. NHD has also considerable interests in the national strategy for ICT, which is led by the Ministry for Government Administration, Reform and Church Affairs (FAD), the national strategy for biotechnology, led by the Ministry for Education and Research (KD).

Secondly, NHD has occasionally prioritised specific industry branches. Initiatives to specific branches usually reflect political goals. Such initiatives include support to the maritime area, food from the marine sector and innovation in the health sector. Since 2009, as an outcome of the national agreement on climate, ‘Klimaforliket’, established by the Norwegian Parliament, green technology and renewable energy have been prioritised.

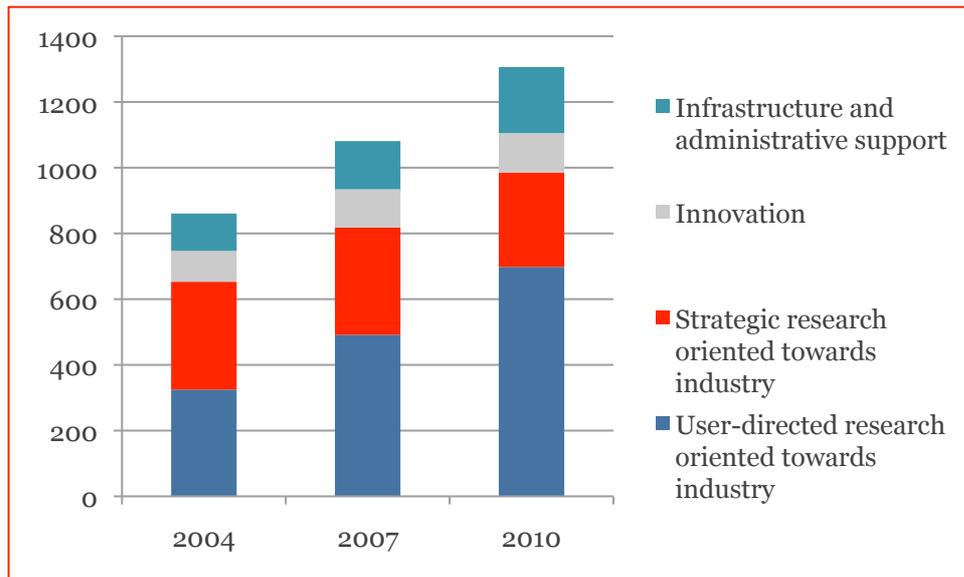
NHD intends to push companies to invest more in their R&D. During the period NHD has slightly shifted focus, from strategic research towards more user-directed research in industry. The shift is shown in Figure 11.<sup>16</sup>

NHD has throughout the period emphasised the creation of bridges between industry and publicly funded research organisations. One aspect has been to increase support to commercialisation of research from PROs, especially in the FORNY programme. Since 2008 NHD has also backed an initiative to recruit and support more PhD students in the business sector.

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<sup>16</sup> NHD has at several occasions changed the categorisation of its allocations. NHD has only changed categorisations if changes make the activities better fit with the Frascati Manual. However, in order to enable comparisons between the three points in time, changes have in this report as much possible been traced and placed in the same categories for all years. Figure 11 is based on the main divisions NHD used before 2010.

Figure 11: Themes in NHD allocations to RCN 2004, 2007 and 2010 (MNOK)



Source: Allocation letters from NHD to RCN, 2004, 2007 and 2010

Figure 11 represents four categories of support. 'User-directed research oriented towards industry' comprises support to, primarily to BIA. 'Strategic research oriented towards industry' comprises support to strategic fields (ICT, biotechnology etc) and support to research institutes and strategic competence building at universities and institutes. 'Innovation' comprises e.g. support to network building across sectors and commercialisation of R&D in e.g. the FORNY programme. 'Infrastructure and administrative support' comprises support to primarily the nuclear research in Halden and to internationalisation and various administrative tasks.

Since 2008 NHD has given considerable space to the promotion of equality between men and women. For example, NHD has instructed RCN to promote equality between men and women as recipients of funding, and to increase the share of women in programme committees. RCN should also set goals for how many women that should become entrepreneurs within all relevant programmes and initiate research on female entrepreneurship.

NHD is also responsible for tourism, in which interest increased a bit in 2008, when a broad group, led by Innovation Norway, was established to coordinate tourism activities across the public sphere. RCN was part of the group. Since 2005 NHD has also earmarked funding for research on avalanches.

### 3.4 Communication

#### 3.4.1 Tone and style in allocation letters

NHD has, more than most other ministries, developed a markedly instrumental view on research. Combined with high competence among NHD staff, a close formal and informal dialogue and much data input has made the allocation letters relatively detailed with a relatively high number of guidelines. It also means that the tone might appear a bit commanding. Given the close dialogue, the strict tone should primarily be understood as aiming for clarity.

NHD has twice, 2005 and 2008, remarked that RCN should be better at monitoring and reporting, and to structure its reports based on the letters of instruction. RCN should also be prepared to abort funded activities that appear less fruitful than others, more highly prioritised ones.

Table 3 presents the number of NHD guidelines ('förlinger') per letter of instruction for three years. The table should be taken with a big pinch of salt; it is difficult to define the difference between an instruction and a guideline. The level of detail in NHD letters of instruction is high, and beside the guidelines there are also many instructions which are detailed, and many requests for reports on specific areas and details. The table should therefore be seen as an indication of the development of the level of details rather than precise statistics of guidelines. It nonetheless seems clear that NHD has increased the number of guidelines over time, partly as the result of its broadened strategies as outlined above.

RCN does not find the tone and style of the allocation letters problematic, given the close dialogue. Some guidelines in the allocation letters may also originate in RCN's comments on the draft, used to clarify particular issues of interest.

Table 3: Number of NHD guidelines (international level excluded)

	2004	2007	2010
<b>Number of NHD guidelines</b>	8	13	20

Source: Allocation letters from NHD to RCN, 2004, 2007 and 2010

### 3.4.2 The process behind allocation letters

NHD writes a draft of the allocation letter, which RCN gets an opportunity to comment on. Its comments are listened to, but not necessarily taken. NHD then sends over a final version to be implemented. The allocation letters are also supported by the continuous and close dialogue.

### 3.4.3 Other communication

NHD and RCN have a very close and fruitful informal dialogue on a wide range of issues. NHD has relatively strong expertise in the research and innovation field and is highly interested in monitoring its activities, two factors that contribute to RCN finding the dialogue stimulating and sometimes challenging. However, the direct dialogue between RCN and the political side of NHD is mostly absent, which RCN finds a bit unfortunate; however, the permanent officials in NHD of course represent the minister as well

## 3.5 Instruments

### 3.5.1 RCN instruments for NHD funding

RCN has used allocations from NHD in a broad range of programmes and other activities. That is largely a consequence of NHD's sector not being field-specific, but rather cutting across other sectors. Allocations from NHD therefore seem easy to mix with allocations from other ministries, see Table 4.

NHD is very happy with RCN's work on the programmes and BIA. NHD is also happy that RCN has begun to invite more international experts to their committees.

At several occasions NHD has initiated dialogues on how its contributions could be used more efficiently. That includes how its funding to co-funded large programmes could be more focused on industry-oriented and international activities, and how the user-directed innovation arena (BIA) could be closely monitored..

The FORNY programme is of interest to NHD. Since the abolition of the professor's privilege NHD has used the FORNY to channel resources into the system of Technology Transfer Offices (TTOs). Now that system is up and running, and the institutions are running it themselves, so FORNY is being moved back towards a project- rather than institution-oriented role. NHD has also successfully used the FORNY to push collaboration between TTOs.

Table 4: NHD participation in RCN programmes 2003, 2007 and 2011

Year	No of programmes	No of programmes in which other min. participated	No of programmes in which other min. participated, excl. KD
2003	22	15	11
2007	14	8	6
2011	12	11	8

Source: RCN Annual reports 2003, 2007 and 2011

### 3.5.2 NHD use of RCN programme committees

NHD has been represented in several programme committees. However, NHD tries to stay out of committees. Today they have one member of the FORNY committee; that is however mainly for training. Partly to compensate for lack of insight into programmes, NHD sometimes has representatives in the process of handling incoming proposals. NHD usually requests relatively detailed reports from meetings.

## 3.6 The role of RCN

### 3.6.1 National competition

Figure 12 shows NHD's budget allocations to RCN in 2011. It illustrates NHD's broad involvement not only in BIA but across a wide range of thematic programmes, infrastructural and networking measures.

Figure 12 Snapshot: NHD budget allocations to RCN, 2011

Tabell 2.1: Aktiviteter som NHD helt eller delvis finansierer i 2010 og 2011. Total bevilgning 2010 og 2011 og NHDs faktiske bevilgning og finansieringsandel 2011. Mill. kroner.

Aktivitet	Bevilgning 2010	Bevilgning 2011	NHD bevilgning 2011	Andel finansiert 2011
Brakerstyrte innovasjonsprogr	732	724	511	71 %
Grunnforskningsprogrammer	32	30	8	28 %
Handlingsrettede programmer	177	177	3	1 %
Store programmer	627	642	159	25 %
Programmer	1569	1572	680	43 %
Internasjonal prosjektstøtte	50	57	33	58 %
Andre frittstående prosjekter	66	46	33	71 %
Frittstående prosjekter	116	103	66	64 %
Basisbevilgninger	431	442	260	59 %
Strategisk institusjonsstøtte	84	74	34	45 %
SFF/SFI/FME	140	180	10	6 %
Andre infrastruktureiltak	90	90	90	100 %
Infrastruktur og inst. tiltak	745	786	393	50 %
Systemtiltak	186	174	110	63 %
Nasj. stimul.tiltak.møteplass	18	15	7	45 %
Internasjonale nettverkstiltak	113	123	44	36 %
Nettverkstiltak	317	313	161	52 %
Inform./formdl./publisering	20	21	13	60 %
Planlegging/utredn./evaluering	21	21	3	12 %
Disposisjonsfond	-1	-1	0	-2 %
Sekretariater	33	33	22	65 %
Total	2819	2848	1337	47 %

Source: RCN Annual Report, 2011

NHD is a strong supporter of competition for funding on the national level, most notably by prioritising BIA.

### *3.6.2 RCN in the national innovation system*

NHD has throughout the period underlined the need for close and efficient collaboration between RCN and Innovation Norway. That also includes close collaboration with the regional offices of Innovation Norway. RCN should also cooperate closely with SIVA, especially on the regional level. When allocations to space activities were expanded in 2010, RCN was furthermore instructed to develop its relations with the Norwegian Space Centre and related organisations.

Innovation Norway is the major partner to coordinate activities with RCN. The coordination between the two organisations is however not entirely easy and thereby partly ineffective. For example, while Innovation Norway is instructed to favour regional redistribution RCN has a mainly national mandate. Thus, the coordination problem does mainly not concern overlap; there is rather a gap between the two.

Since 2006 NHD has also instructed RCN to engage in dialogues on intellectual property rights with other actors in the national innovation system, including the Norwegian Industrial Property Office (Patentstyret). IPR support for internationalisation has been particularly emphasised.

NHD would also like to see better integration with SkatteFUNN, which is administered at RCN. The idea of putting the work into RCN was that RCN should be able to handle the annual peak of applications, but to NHD it looks like RCN does not deploy extra people. Moreover, NHD would prefer RCN to use the information it gets through this channel, for example to attract more companies to the R&D system in e.g. BIA. RCN seems not to have noticed that wish.

### *3.6.3 International collaboration*

Throughout the period NHD has been a strong supporter of internationalisation, both of research and of (network-creating opportunities for) Norwegian business. Overall, NHD is happy with RCN's work on internationalisation. However, on a couple of points NHD thinks that RCN should improve. Those points are outlined below.

NHD finds that RCN struggles with the relation between the national and the international. NHD has integrated the international dimension into the programmes in the letter of allocation but this leads to problems about how RCN decides how much money to put into international projects. For example, there were difficulties with deciding the Eurostars budget, as RCN had to make a decision of reallocating funding from other RCN programmes, which they had problems to do. NHD thinks that RCN needs to decide – in dialogue with e.g. NHD – about opening its programmes, based on its international strategy.

NHD also finds that RCN is too focused on participation in EU-programmes; RCN is too keen on participating in e.g. ERA-nets – it should be better at analysing the added value with such participation. Along the same line RCN has been instructed to adapt its activities better to fields prioritised in EU FPs and to prioritise EUREKA.

RCN has also been instructed to develop better collaborations with key partners outside the EU such as the USA, Canada, Japan, China, Russia and South America. In 2006 NHD requested RCN to more closely document the outcomes of bilateral international collaborations. RCN was also instructed to support Norwegian participation in EXPO2010 in Shanghai, which had a focus on R&D. RCN responded partly by, together with Innovation Norway, initiating an exchange programme between Norway and China.

### *3.6.4 RCN as a partner for dialogue on research strategies*

NHD has made extensive use of RCN as a strategic partner. The ministry also uses Innovation Norway in a similar way. NHD is generally happy with RCN as a partner for dialogue. However, NHD would like RCN to take a more comprehensible approach to its budget and its activities, so that interconnectedness, mutual reinforcement or redundancy among instruments is at the hearth of its proposals. That approach would include more macroeconomic analyses linked to the Government's main documents, plans and

practises. Those analyses would serve as bases for which priorities could be made – NHD finds that RCN only wants to state priorities for ‘new money’, while the distributions within zero growth budgets are stable from year to year. Overall, NHD and RCN differ considerably in that respect – while NHD is dominated by economists, RCN is dominated by technologists.

RCN appears to have been a particularly important partner for international research strategies. That includes in particular the EU, e.g. for Norwegian participation in FPs. NHD has also at several occasions invited RCN for close dialogue on the development of a broad, coordinated strategy for internationalisation.

### *3.6.5 RCN reporting*

NHD has high demands on reporting, which includes relatively detailed instructions on how and what to report. NHD has also throughout the period asked RCN to report from the perspective of Norwegian business sector along a list of indicators. When the present MBO system began to be developed, NHD already had started its own process to develop a system for its area of responsibility.. NHD has also emphasised the need for RCN to conduct risk analyses and to monitor the development of programmes etc.

NHD finds the new MBO system only partly useful. The indicators are not useful for steering. NHD realises that current R&D outcomes may result from decisions taken several years ago, and as such the ministry sees a need for broader scope to the MBO system than a strictly annual reporting horizon. The system is also insufficient to indicate the performance of RCN. However, as monitoring system for research – especially when combined with NHD’s own system – the new MBO system is of some use. NHD has solved the shortcomings by practically overlaying the new system on its own.

RCN has responded well to NHD’s high demands, which has resulted in extensive sections (around 50 pages) in the annual reports – notably, NHD sections have been almost twice as long as any other ministry section, including KD. Moreover, NHD frequently asks for data from RCN with short prior notice. NHD is very happy with the expedience and quality of RCN in that respect.

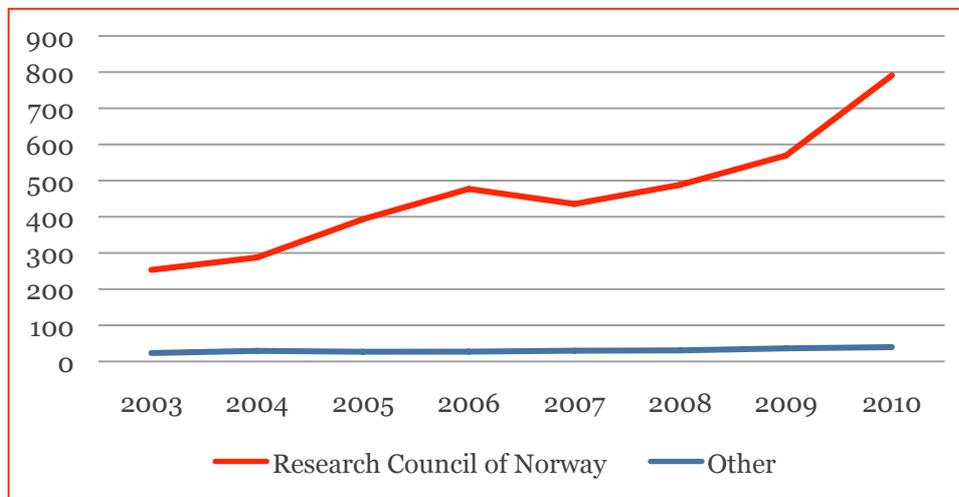
NHD has also been an early proponent for professional external communication from RCN. In 2006 RCN was instructed by NHD to develop a plan for better external communication of research and innovation results, including to build internal competence for how to handle media contacts. NHD also requested close contacts between the information management in RCN and NHD, which was further emphasised in 2009. After 2008 RCN should also collaborate with NHD on how to make politics for industry and value creation visible. Similar signs have been seen in other ministries, which might indicate that politicians around that time became more interested in using research as a symbol for strength.

## 4. Ministry of Petroleum and Energy

### 4.1 Context and budget allocations to research and innovation

The Ministry of Petroleum and Energy (OED) is a powerful ministry, due to Norway's rich resources in both petroleum and other energy sources. OED has throughout the investigated period 2003–2010 allocated almost its entire budget for research and innovation to RCN, see Figure 13.<sup>17</sup> OED has increased its allocations to RCN over the period, in two steps: between 2004 and 2006, and after 2008. The increases after 2008 were largely attributed to the 'Klimaforliket', a broad national political agreement on how to meet the environmental and climate challenges.

Figure 13: OED allocations to research and innovation 2003-2010 (MNOK)



Source: Government's annual Budget bills, OED's sector bills, 2005-2012 (Financial statements for 2003-2010)

By channelling almost all its budget for R&D via RCN, OED is a rare example among the ministries. This circumstance has two implications. Firstly, that OED to some extent might expect RCN to play roles that other ministries let other agencies play. That issue seems to be of little concern however; neither OED nor RCN see any such tendency. Secondly, that OED is unusually dependent on what RCN understands as key issues in the sector and that it responds properly. On this latter point OED has high belief in the competence of RCN (see further below), but OED thinks that RCN during the last years has had a tendency to 'standardise' its routines, activities etc, which is negative – OED occasionally requires specific solutions for its sector and does not like to see its priorities set aside due to overall administrative requirements. OED expresses a need for a flexible RCN...

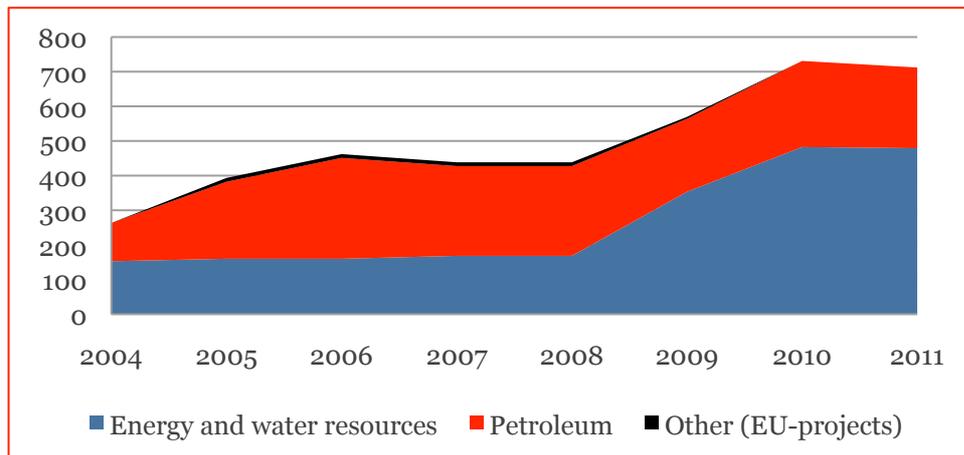
### 4.2 Strategies

OED has separated its interests and allocations into two sectors: petroleum, and energy and water resources. Funding to RCN has been earmarked to the two sectors, although

<sup>17</sup> Note that Figure 13 is based on financial statements, whilst Figure 14–Figure 16 are based on budgets – i.e. before the allocations have actually been made. Financial statements do not specify allocations to sectors or programmes.

RCN has been granted some flexibility to reallocate resources if needed. Figure 14 shows the development of budget allocations to the two sectors for the years 2004 to 2011. The figure reveals that the increase between 2004 and 2006 was entirely confined to the petroleum sector, while the significant increase after 2008 was exclusively focused on the energy and water resource sector, which more than doubled. During those years allocations to the petroleum sector even decreased. The allocations to the sectors, and OED strategies overall, are to an increasing degree influenced by two national R&D strategies and a governmental agreement: OG21, Energy21 and Klimaforliket.

Figure 14: OED budget allocations to sectors 2004-2011 (MNOK)



Source: Allocation letters from OED to RCN, 2004-2011

#### 4.2.1 OG 21, Energy 21 and Klimaforliket

OG21 and Energy21 are national R&D strategies initiated by OED and established by stakeholders in the petroleum and energy sectors respectively. Each strategy has a board appointed by the Minister of Petroleum and Energy. The boards are responsible for the implementation of the strategies.

The OG21 strategy was established in 2001 and was revised in 2005. OG21 stands for Oil and gas in the 21<sup>st</sup> century, and is a broad technology strategy for the petroleum industry to ensure sustained profitability in the Norwegian petroleum industry and resource optimisation on the Norwegian continental shelf, as well as increased technology and knowledge exports.

Energy21 was initiated in 2006 and mainly put into practice in 2008. Energy21 is a very strong initiative; 200 actors participated in the strategy development. The Energy21 strategy identifies six priority focus areas: solar cells, offshore wind power, utilisation of resources using balance power, flexible energy systems (smart grids), conversion of low-temperature heat into electricity, and carbon capture and storage (CCS). The Energy21 strategy recommends increased public funding for RD&D activities in the six priority focus areas. The funding would be allocated via RCN, Enova, and Innovation Norway.

In 2008 most Norwegian political parties reached a broad agreement on the climate issue – ‘Klimaforliket’. The increases in funding after 2008 can mostly be attributed to Klimaforliket. Thus, the implementation of Klimaforliket coincided with the implementation of Energy21. For RCN the Klimaforliket led to a more clearly defined budget which it was possible to plan against. The general agreement about what should happen was also useful for RCN. Klimaforliket was also meant to increase support to climate research, but that funding has been forthcoming only to a minor extent.

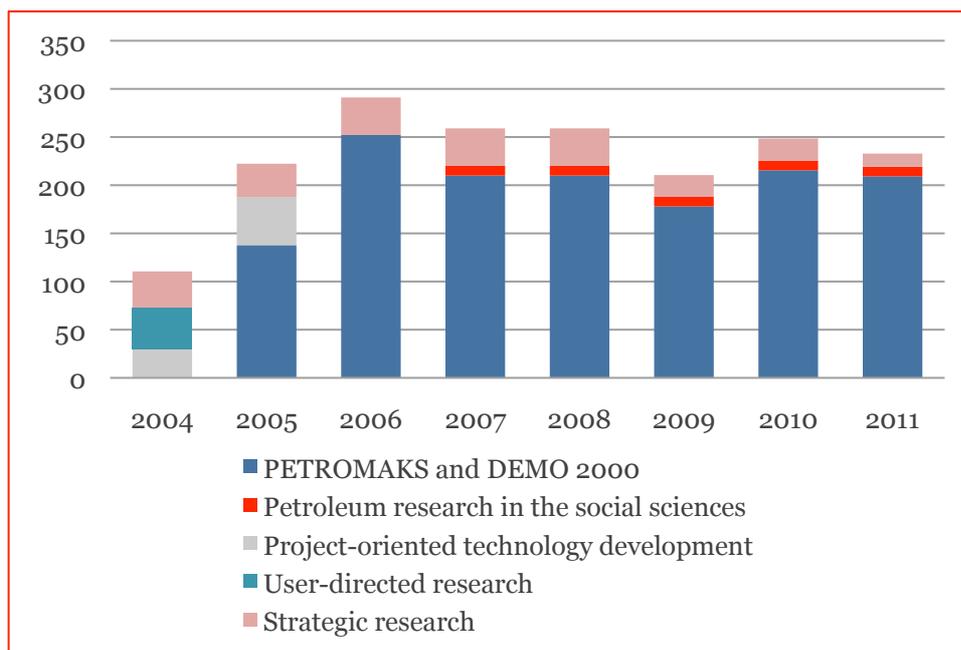
Both OG21 and Energy21 have own secretariats (a director) working for the boards. The directors have offices in RCN, although the director for OG21 also has an office elsewhere. OED considers giving OG21 and Energy21 even bigger roles in the future, with more

influence on research strategy and allocations, which might become a challenge to RCN – not least since the ministry thereby would ‘delegate’ some of its power.

#### 4.2.2 Petroleum sector

Figure 15 shows OED allocation to the petroleum sector 2004–2011. The main message from the figure is that allocations to large programmes have been very dominant since 2005. The programmes have included several project types. The two abandoned categories ‘User-directed research’ and ‘Project-oriented technology development’ were also channelled via programmes; the changed pattern is thus to some extent a result of a changed way of instructing.

Figure 15: OED budget allocations to the petroleum sector 2004-2011 (MNOK)



Source: Allocation letters from OED to RCN, 2004-2011

The PETROMAKS programme is a broad programme towards the petroleum sector, covering activities from relatively basic research to applied research and development. Up until and including 2010, PETROMAKS had funded 1323 projects, of which 428 were user-directed innovation projects (Brukerstyrt innovasjonsprosjekt), 513 were competence projects with user participation (Kompetanseprosjekt med brukermedverking) and 233 were researcher-led projects (Forskerprosjekt), which reflects its broad spectrum.

DEMO2000 is a programme that supports commercialisation and implementation of petroleum-related technology by funding pilot projects and demonstrators. DEMO2000 complements PETROMAKS which is more basic and applied. A large number of projects, 880, have been supported in DEMO2000. DEMO2000 has received around MNOK 25-75 per year and has thereby been smaller than PETROMAKS. The DEMO2000 is important to OED and the industry in the sector. OED thinks that RCN manages the programme and the idea behind it well, after initially having been sceptical towards running a demonstration oriented programme. OED finds that RCN gradually has become more concerned about demonstration issues.

Strategic research has also been carried out in programmes, e.g. EUROMARGINS, directed towards EU-collaboration. Strategic research has also included, e.g. in chemistry programmes, the programme for research on seabirds, and strategic programmes to institutes and universities (SIP/SUP-programmes).

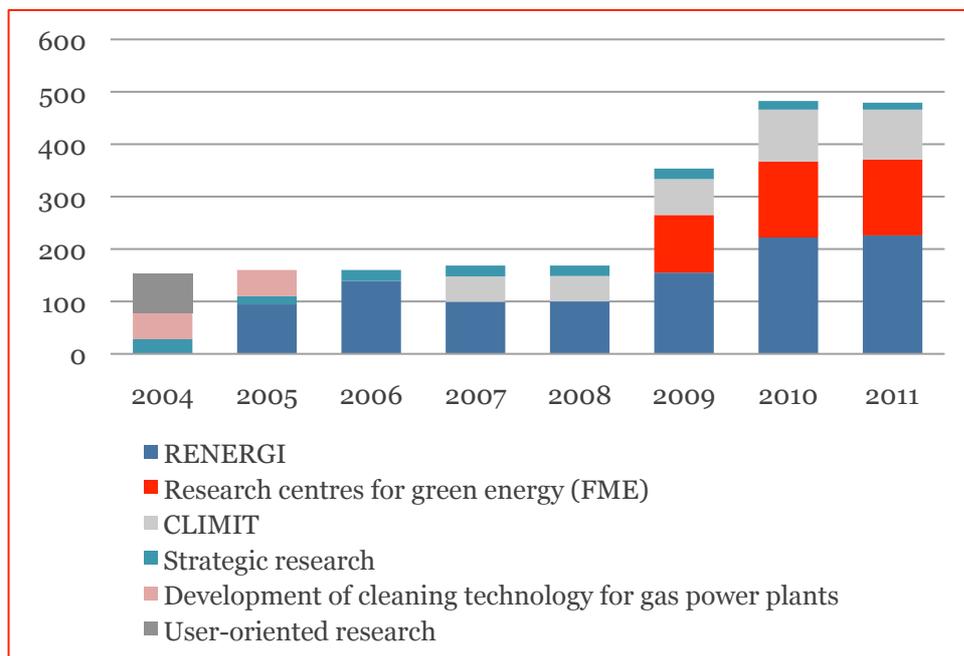
OED has noted that the petroleum sector is pivotal for the Norwegian economy, and that two thirds of the expected recoverable petroleum resources on the Norwegian shelf have

still not been exploited. Much of the remaining resources are located outside northern Norway, which increases demands on environmentally friendly extraction. OED has also noted that as southern and western oil fields mature, there is some time-pressure to develop more efficient technologies for those fields.

#### 4.2.3 Sector for energy and water resources

Figure 16 shows OED allocations to the energy and water resource sector 2004–2011. The figure shows that the large increase after Klimaforliket can mainly be attributed to increases to two ongoing programmes, CLIMIT and RENERGI, and to the initiation of an ambitious programme for ‘Research centres for green energy (FME)’. Unlike in the petroleum area, only a small amount of resources have been allocated to ‘Strategic research’

Figure 16: OED budget allocations to the energy and water resource sector 2004-2011 (MNOK)



Source: Allocation letters from OED to RCN, 2004-2011

The RENERGI programme is broad and directed towards the full spectrum of R&D activities: from basic research to product development and policy support. A total of 1532 projects were supported in RENERGI between 2000 and 2010, of which 672 were user-directed innovation projects (Brukerstyrt innovasjonsprosjekt), 343 were competence projects with user participation (Kompetanseprosjekt med brukervedverking) and 377 were researcher-led projects (Forskerprosjekt), which reflect the broad spectrum of the programme.

The CLIMIT programme is directed towards ‘catching’ and storing CO<sub>2</sub> from fossil based energy sources. CLIMIT has been smaller, with only 188 funded projects 2000–2010, of which 71 were user-directed innovation projects (Brukerstyrt innovasjonsprosjekt), 83 were competence projects with user participation (Kompetanseprosjekt med brukervedverking) and 26 were researcher-led projects (Forskerprosjekt), which shows that CLIMIT has been broad. CLIMIT was detached from RENERGI in 2005, but also comprises prior support to cleaning technology in gas power plants. CLIMIT is co-administered by RCN and Gassnova since 2009.

The FMEs are a direct result of the Energy21 strategy and the Klimaforliket agreement and are primarily intended for basic, strategic research. Notably, the FMEs are not –

unlike the SFIs – classified as strategic research, even if they in practice are the same thing.

## 4.3 Communication

### 4.3.1 Tone and style in allocation letters

OED sees the allocation letters as the most important instrument for steering. OED has used the allocation letters to outline a broad strategy with motivated aims. The letters have generally not been very specific and contain few detailed guidelines. However, occasionally the relatively detailed context descriptions might have been interpreted as guidelines, as they have indicated a desired direction. General guidelines have also been found in a handful of White papers from the Storting. Earmarking is often outcomes of political decisions, or discussions in OG21 and Energy21.

Table 5 shows the number of guidelines (“förringer”) from OED that concerned the national level. The number increased slightly over the period. However, the increase should be taken with a pinch of salt, as almost all most guidelines have been broad and have not singled out specific tasks or organisations.

Table 5: Number of OED guidelines (international level excluded)

	2003	2007	2010
<b>Number of OED guidelines</b>	2	7	5

Source: Allocation letters from OED to RCN, 2003, 2007 and-2010

### 4.3.2 Process behind the allocation letters

The process begins with the Storting White paper No 1, which outlines OED budget including the major research priorities. OED then puts together a more detailed picture in a draft of the allocation letter, which RCN comments on. OED then writes a final allocation letter.

The RCN is concerned to avoid being steered on details. RCN comments are therefore focused on getting rid of guidelines that would impede on their space for action. OED would like RCN to comment on thematic priorities etc, which they rarely do.

### 4.3.3 Other communication

RCN and OED have had a relatively mutual understanding and fruitful formal and informal dialogue. This is also reflected in that RCN throughout the period has been relatively free to move OED allocations from one field/programme to another, as long as it has motivated the changes and kept a dialogue with OED. The lack of institutes in OED sector probably makes the dialogue easier.

## 4.4 Instruments

### 4.4.1 RCN instruments for OED funding

Allocations from OED have mainly been channelled through a relatively small number of large programmes. The programmes have been described above. OED has throughout the period encouraged RCN to mix its allocations with funding from other ministries. However, OED has been relatively careful to watch its sector; the programmes are often strongly dominated by OED funding. This pattern has been relatively unchanged during the period, see Table 6.

At a couple of occasions OED has partly changed programme strategies. In 2007 OED instructed RCN to let RENERGI focus more than previously on energy from the sun, biosphere, wind and sea. In 2007 OED instructed RCN to revise CLIMIT and in 2008 to develop a shared CLIMIT-secretariat with Gassnova.

OED is very happy with RCN once a programme is established; OED finds that RCN is very good at using funds for proper activities and has a very good understanding of the sector. However, OED sees a risk that the setting up of programmes can become too much of compromises, which might result in too little flexibility and thereby a potential risk for some sector priorities.

Figure 25 shows OED's budget allocations to RCN for 2011. It illustrates the ministry's tight focus on its sectoral remit.

Figure 17 Snapshot: OED budget allocations to RCN, 2011

Tabell 3.1 Bevilgning og forbruk for OED for 2011. Beløp gitt i kroner.

	Departementets bidrag		Program/aktivitet totalt			
	Bevilget i år	Beregnet forbruk	Bevilget i år	Disponibelt budsjett	Totalt forbruk	Forbruks- prosent
<b>Petroleumssektoren</b>						
PETROMAKS	163 600 000	151 723 295	233 450 000	240 639 737	216 502 606	90
Havet og kysten	6 000 000	6 629 173	63 070 588	56 931 368	62 901 317	110
PETROSAM - Samf.vitensk.petroleumsforsk.n.	10 000 000	13 187 467	12 500 000	24 121 600	16 484 334	68
DEMO 2000	46 700 000	26 245 536	46 700 000	88 069 959	26 245 536	30
<b>Strategiske midler:</b>						
Amen strategisk forskning	6 500 000	6 913 252	99 310 662	161 706 052	102 879 933	64
Sum	232 800 000	204 698 723	455 031 250	571 468 716	425 013 726	
<b>Energi- og vannressurssektoren</b>						
RENERGI	230 000 000	234 301 752	384 158 541	497 887 068	391 343 657	79
Miljøvennlig gasskraftteknologi (CLIMIT)	95 000 000	102 822 873	95 000 000	123 200 736	102 822 873	83
Forskningsentre for miljøvern (FME)	145 000 000	100 953 030	150 000 000	235 780 350	104 431 871	44
<b>Strategiske midler:</b>						
Katalyse og organisk syntetisk kjemi (KOSK II)	4 000 000	4 374 836	13 900 000	20 374 921	15 202 597	75
Norsk institutt for sjørett	1 500 000	1 534 615	2 600 000	2 600 000	2 660 000	102
Prosj.etabl.støtte EU (bedrift)(PES-EU)	1 000 000	682 143	9 000 000	4 387 777	6 139 290	140
Prosj.etabl.støtte EU (FoU)(PES-INST)	2 700 000	3 433 054	26 200 000	26 234 693	33 313 475	127
Sum	479 200 000	448 102 303	680 858 541	910 465 545	655 913 763	
<b>Strategiske fellesfunksjoner m.m</b>						
Energi21-sekretariatet	2 050 000	4 693 409	2 050 000	3 541 220	4 693 409	133
Strategiske fellesfunksj.OED	3 500 000	2 278 492	3 500 000	3 500 000	2 278 492	65
Disposisjonsfond	4 450 000	0	4 450 000	6 313 000	0	
Sum	10 000 000	6 971 901	10 000 000	13 354 220	6 971 901	
<b>Sum totalt</b>	<b>722 000 000</b>	<b>659 772 927</b>	<b>1 145 889 791</b>	<b>1 495 288 481</b>	<b>1 087 809 390</b>	<b>73</b>

Bevilget i år: Departementets bevilgning i løpet av budsjettåret

Beregnet forbruk: Departementets andel av Totalt forbruk beregnet på grunnlag av departementets andel av alle departementenes bevilgninger i løpet av budsjettåret. Over/underforbruk i forhold til departementets bevilgning er en effekt av at aktivitetsnivået i programmet (Totalt forbruk) ikke er bestemt av det enkelte års bevilgning, men av bevilgningene over hele program/aktivitetsperioden. I løpet av program/aktivitetsperioden vil summen av de årlige bevilgninger være lik summen av beregnet forbruk for det enkelte departement.

Bevilget i år: Departementenes samlede bevilgninger i løpet av budsjettåret

Disponibelt budsjett: Departementenes samlede bevilgninger i løpet av budsjettåret pluss overføringer (underskudd/overskudd) fra tidligere år.

Totalt forbruk: Totalt forbruk i budsjettåret

Forbruksprosent: Totalt forbruks andel av Disponibelt budsjett

Source: RCN Annual Report, 2011

Table 6: OED participation in RCN programmes 2003, 2007 and 2011

Year	No of programmes	No of programmes in which other min. participated	No of programmes in which other min. participated, excl. KD
2003	9	5	5
2007	7	3	3
2011	6	4	3

Source: RCN Annual reports 2003, 2007 and 2011

#### *4.4.2 OED use of RCN programme committees*

OED seeks to have observers in the committees for its key programmes. OED is often the only ministry that have observers in those programmes, partly because the programmes tend to be heavily dominated by OED allocations. RCN thinks that OED has been very careful not to slip into intervention from its observer role.

There is one exception to the observer role: OED sits as head of committee in the small PETROSAM programme, a programme aimed to provide a basis for strategic and political decisions in the oil and energy sector, in part by focusing on geographical areas of Norwegian interest, e.g. the European gas market, the Middle East, and Russia. RCN expects OED to step down and become observer once the PETROSAM is finished and replaced by a new programme.

### **4.5 The role of RCN**

#### *4.5.1 National competition*

OED has throughout the period encouraged competition. OED has also encouraged RCN to support research and innovation that is internationally competitive. It should however be noted that the top priority for OED is to ensure sector relevance, thus, OED might be sceptical to competition where only academic quality matters.

#### *4.5.2 RCN in the national innovation system*

Throughout the period OED has more than other ministries focused its resources on RCN. OED has also significantly increased the size of its allocations. Thus, the ministry has placed RCN in the centre of the national innovation system, which indicates high belief in RCN competence. OED has however not pushed for strong RCN involvement in the national strategies, see above.

Throughout the period RCN has been told to keep close dialogue with NVE and Enova on Energy and water resources. RCN has also been instructed to cooperate closely with Gassnova on cleaning technology for gas plants, for example in the CLIMIT programme. OED is very happy with the collaboration between RCN and Gassnova.

#### *4.5.3 International collaboration*

Throughout the period OED has pushed RCN to initiate more international collaborations. That has particularly concerned Norwegian participation in the EU framework programmes. Bilateral collaborations have also been prioritised, e.g. with the USA and – especially lately – Brazil. OED has instructed RCN to develop collaborations with Russia and the USA in the PETROMAKS programme. The international work in the petroleum sector is much more focused towards specific countries than is the international efforts in other parts of the energy sector.

OED has also argued for collaborations via other players, e.g. the International Energy Agency (IEA), Nordic energy research, and multinational agreements such as Carbon Sequestration Leadership Forum and International Partnership for the Hydrogen Economy. Nordic energy research grew in importance after 2009 when the “Top-level Research Initiative” was initiated with a budget of around MNOK 480 over five years.

To OED, internationalisation is firmly instrumental, but to some other actors in the research system – e.g. the Ministry of Education and Research, RCN and the universities – internationalisation of research is partly a goal in itself. OED realises that RCN struggles to find a good balance on that point. OED wants RCN to keep a proper balance between national and international priorities.

#### *4.5.4 RCN as a partner for dialogue on research strategies*

OED has had a relatively good dialogue with RCN on research strategies etc within programmes. OED especially turns to RCN for advice on EU and Nordic opportunities, which RCN has good knowledge about.

OED wants RCN to provide more advice about instruments, e.g. 'More basic research or more demo?', 'How should institutions and capacity be developed?' OED also wants to discuss with RCN what the state's role in research should be versus the private sector; an important and challenging issue on which the two have thus far not had much discussion.

#### *4.5.5 RCN reporting*

Unlike other ministries OED generally does not ask for any specific reports or specific types of communication. From 2005 and onwards OED has instructed RCN to produce quantitative goals and indicators for, in particular, RENERGI (e.g. number of PhDs, postdocs and new start-ups). OED has recently run an internal evaluation of its use of research funding, and concluded that RCN is good at using OED allocations in an appropriate way.

OED does not find the new MBO system particularly useful for steering RCN. It finds the indicators to be more useful to see that 'the patient is alive' rather than to steer, since (effects of) research processes take many years to be seen. OED finds the MBO system difficult to incorporate in the allocation letters. RCN also finds the MBO system to be a bit unclear; for example, if a PhD student should be counted in several areas, should this individual be fractionalised?

From 2008 and onwards the allocation letters included a section on communication. RCN should inform broadly on research. RCN should also, well in time, brief OED on research issues that might be large or controversial in media. OED also expected RCN to make contact to discuss whether or not the research information should be connected to political leadership. Similar signs have been seen in other ministries, which might indicate that politicians around that time became more interested in using research as a symbol for strength.

## 5. Ministry of Health and Care Services

### 5.1 Context

The Ministry of Health and Care Services (HOD) is responsible for applied medical, health, and care services research. As responsible for the sector, it sees capacity building as an overarching priority, both in prioritised areas as well as in the health and care sector itself. The national priorities are presented in HOD research strategy. The overall research policies are presented in the National health and care plan (2011-2015), HOD research strategy, the White paper for research, the White paper for innovation, and in the ministry's annual budgets.<sup>18</sup>

During the last years research and increase in evidence based clinical practise have been high priorities in the national reform of the hospital sector, in the care services reform and the coordination reform, where the primary health and care sector – for which the municipalities are responsible – has been given a new responsibility to take part in, but not initiate, research.

HOD has a national policy to enhance the quality as well as relevance of applied health and care research, most notably by developing new instruments for governance, such as a relatively fine-tuned indicator system and in the hospital sector also by incentive-based earmarked funding for research.

HOD has also tried to clarify the division of labour with KD through the National research strategy, so that HOD funds applied and clinical research and KD funds basic medical research. In addition, HOD also reorganised itself in 2009 by moving research coordination to its own function. to look at the totality of research funding and organization within the Ministry

HOD distributes research funding mainly to four types of organisations:

1. Research Council Norway (RCN)
2. Regional Health Authorities (RHF), for description see below
3. National Competence Centres, including National Competence Centres for rare or little known diseases. These centres are not directly funded by HOD: funding to the centres is largely earmarked in the allocations to the RHF, and there are also national competence centres which are funded by the National Directorate for Health
4. Public agencies that conduct or fund research bodies, such as Nasjonalt kunnskapssenter for helsetjenesten (Norwegian Knowledge Centre for the Health Services), Nasjonalt folkehelseinstitutt (Norwegian Institute of Public Health), Statens institutt for rusmiddelforskning, SIRUS (Norwegian Institute for Alcohol and Drug Research) and Statens strålevern (Norwegian Radiation Protection Authority) etc. In addition, Helsedirektoratet (National Directorate for Health) funds the national centres for "allmennt medisinsk forskningsenheter", national competence centres for dental research and education, as well as a number of national competence centres outside the regional health authorities

RCN has the main responsibility to fund national research projects. The RHF fund research in their regions.

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<sup>18</sup> For the Ministry's research strategy, see Helse- og Omsorgsdepartementets forskningsstrategi 2006-2011 (in Norwegian) at [http://www.regjeringen.no/upload/HOD/Vedlegg/HOD\\_forskningsstrategi.pdf](http://www.regjeringen.no/upload/HOD/Vedlegg/HOD_forskningsstrategi.pdf). For the National Health and Care plan, see Stortingsmelding 16 (2010-2011) (in Norwegian), <http://www.regjeringen.no/pages/16251882/PDFS/STM201020110016000DDDPDFS.pdf>

The regional health authorities and the hospitals have a legal responsibility to do research. Norwegian specialised healthcare services are formally national and funded by HOD through the state budget. The national government has organised the specialised health care sector into four RHF<sup>19</sup>. HOD allocates resources to the RHF<sup>19</sup>s, which (via another arrangement) run hospitals etc. Most of HOD allocations to RHF<sup>19</sup>s are through block grants to a broadly defined type of activity, including patient treatment, education and research. A small proportion (less than 0,5% of the budget) is earmarked for research and allocated partly based on research activity within a set budget.

This way the RHF<sup>19</sup>s fund a significant amount of the medical research in Norway, both translational and clinical research. About 85 % of the research funded by the RHF<sup>19</sup>s is carried out at six university hospitals; one or two in each of the four RHF<sup>19</sup>s, but all the hospital trusts report research activity. The RHF<sup>19</sup>s have their own committees with representatives from the university sector that decide which regional projects to fund. The main motive to allocate research funding to clinical research in the RHF<sup>19</sup>s is to ensure capacity building and good treatment of patients.

The primary health and care services do not sort under the RHF<sup>19</sup>s; they are the responsibility of the municipalities. As one outcome of the recent coordination reform, the municipalities have an obligation to support – but are not obliged to initiate – research. HOD has during the last decade supported the development of research capacity in primary health care and care services through ear marked funding through the National Directorate for Health and RCN. Dental care is the responsibility of the counties, and research capacity is built up through regional competence centres for dental care in the counties.

## 5.2 Budget allocations to research

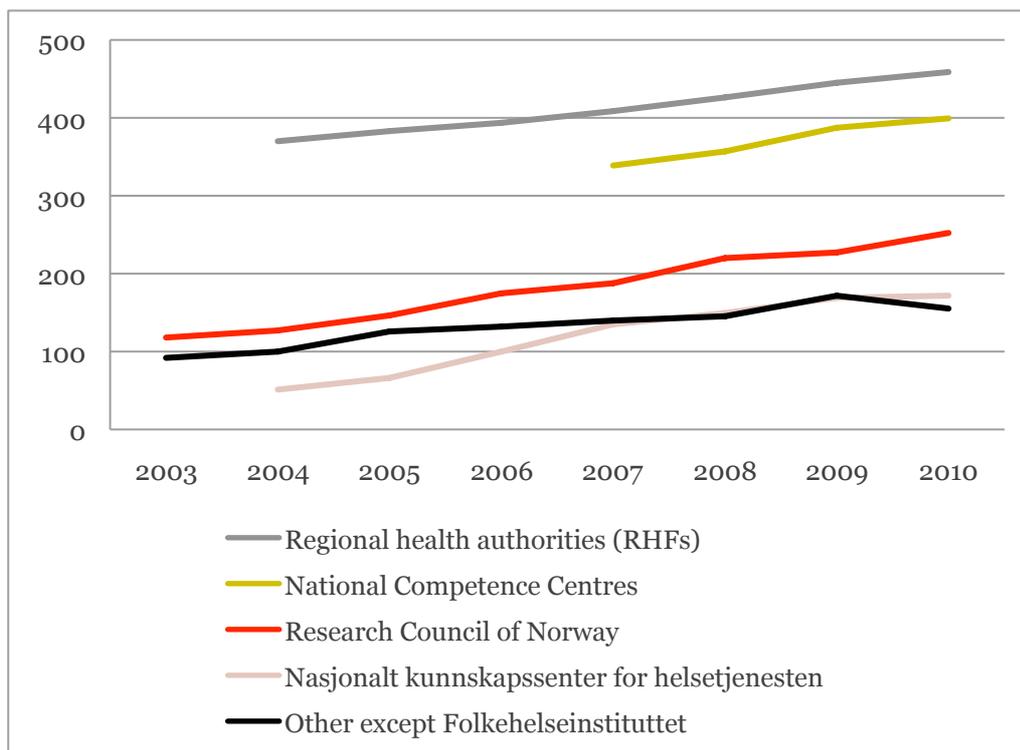
During the period from 2003 to 2011 HOD expanded its total allocations to research quite significantly, see Figure 18 Major HOD allocations to Research, 2003-2010 (MNOK). The figure includes all major allocations except to Folkehelseinstituttet (The Norwegian Institute of Public Health, FHI).<sup>20</sup> Note however that HOD in its budgets does not separate funding for research from other activities in the public agencies or research institutes or the national competence centres in both the specialised health care services and in primary health and care services, which means that while figures for RCN and the RHF<sup>19</sup>s to great extent is used for actual research, figures for the National Competence Centres, Nasjonalt kunnskapssenter for helsetjenesten and Other include significant funding for administration and other activities. Note also that a reporting system for the RHF<sup>19</sup>s, introduced in 2006, is likely to slightly increase the figures for RHF<sup>19</sup>s, and that some of the resources to the RHF<sup>19</sup>s have been used for other purposes that research projects, such as research infrastructure and support to external funding.

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<sup>19</sup> Until 2007 there were five RHF<sup>19</sup>s.

<sup>20</sup> The FHI is a large R&D performer. Between 2003 and 2010 its total budgets expanded from MNOK 624 to MNOK 1358, of which approximately 20-40 per cent went to R&D, according to the interviewed RCN officer responsible for health sector statistics. Unfortunately R&D figures for the FHI have not been available, neither from the FHI nor from public national statistics.

Figure 18 Major HOD allocations to Research, 2003-2010 (MNOK)



Source: Government’s annual Budget bills, HOD’s sector bills, 2005-2012 (Financial statements for 2003-2010)

During the period HOD expanded its allocations to RCN every year, each time with increases of around 3-30 MNOK compared with zero growth budgets. During the same period the research allocations to the RHF were unchanged (apart from being price-adjusted). Data for National Competence Centers are uncertain before 2007 and are therefore not included in the figure. Nasjonalt kunnskapssenter for helsetjenesten received substantial increases in allocations during the period, this is also because they were responsible for several tasks.

To compensate for rigid budgets the HOD typically requires more research within specific initiatives, such as by in the coordination reform, health registers etc. HOD also make priorities by using money otherwise allocated to handle price increases.

### 5.3 Strategies

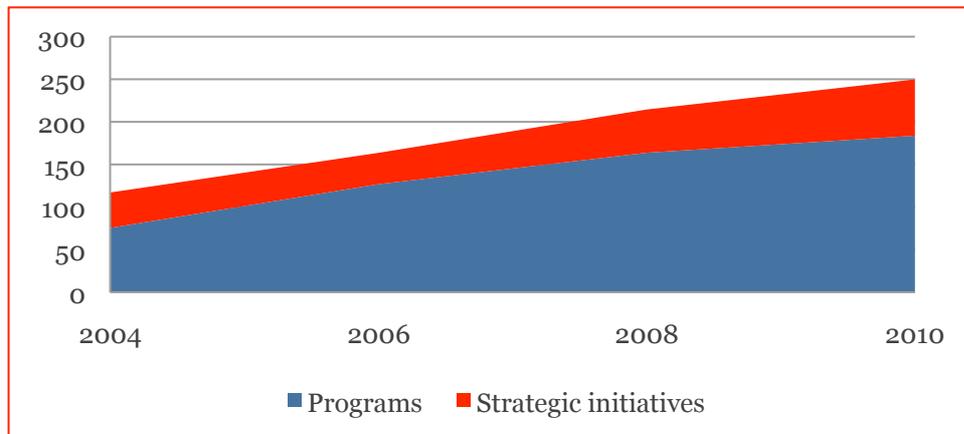
HOD has developed a comprehensive and relatively detailed research strategy. Research is also an important theme in Nasjonal helse- og omsorgsplan, and health research is one thematic priority in the White paper on research. HOD has also formulated goals for specific thematic areas through the research programmes in RCN. The thematic areas are defined based on national political decisions as well as feedback from public agencies and institutes, RHF, public debate, and RCN.

For every year 2003 to 2010 HOD earmarked all of its funding to RCN to thematic areas. The thematic priorities both concerned capacity building and different research topics. The funding was further separated into two types of support: programmes, and strategic initiatives. ‘Programmes’ refers to programmes at RCN. Strategic initiatives generally reflect (political) priorities that cut across several programmes. Strategic initiatives have occasionally been moved into the programme category and vice versa.

Between 2003 and 2011 the balance between funding to programmes and funding to strategic initiatives shifted towards relatively more funding to programmes, see Figure 14.

Almost the entire increase of funding to RCN was channelled to programmes, while funding for strategic initiatives was relatively stable.

Figure 19: Funding to programmes and strategic initiatives, 2003-2010 (MNOK)

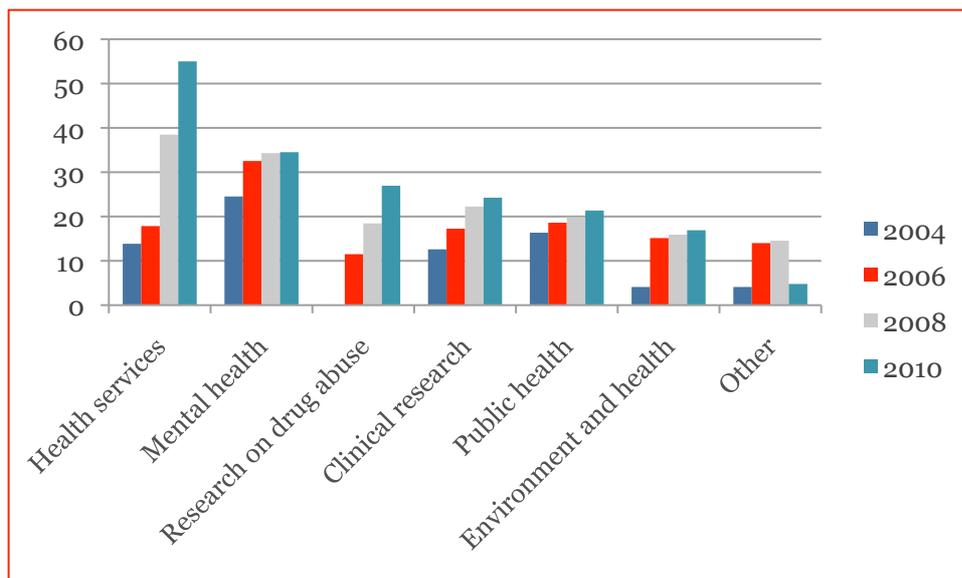


Source: Allocation letters from HOD to RCN, 2004, 2006, 2008 and-2010

HOD thematic priorities are most visible in its allocations to different types of programmes. Figure 20 shows the development of allocations to programme themes for the years 2004, 2006, 2008 and 2010. Each theme comprises one or several programmes<sup>21</sup>. The figure shows that investments in health and care services research have increased considerably. The programme for research on drug abuse was initiated in 2006, and expanded relatively fast, in part because the funding was largely earmarked to the establishment of a new centre for research on drug abuse. Programmes for mental health expanded during the period, as part of a broader national strategy for mental health. Also funding for clinical research expanded over the period, but was always remarkably small. Clinical research has mainly been funded by the RHF.

<sup>21</sup> Health services comprises the programmes Helsetjenester og helseøkonomi. IKT i medisin og helsetjeneste, and Helse- og omsorgstjenesteprogrammet. Mental health comprises the programmes Mental helse, Psykisk helse, and Mestrings og beskyttelsefaktorer. Research on drug abuse comprises the Rusforskningsprogrammet. Clinical research comprises the programmes for Klinisk forskning and Klinisk forskning og alternativ medisin. Public health comprises the programmes Arbeid og helse, Helse og samfunn, and Folkehelseprogrammet. Environment and health comprises the programmes Miljø og helse and Miljø, gener og helse. Other comprises the programmes Global helse- og vaksinasjonsforskning (strategisk satsing före 2006), Etikk samfunn og bioteknologi, Näringsrettet bio- og genteknologi (strategisk satsing fr o m 2004), and Velferdsprogrammet. Global helse- og vaksinasjonsforskning and Näringsrettet bio- og genteknologi were listed as strategic initiatives before 2006, but are here presented as programmes in order to make it easier to track developments over time.

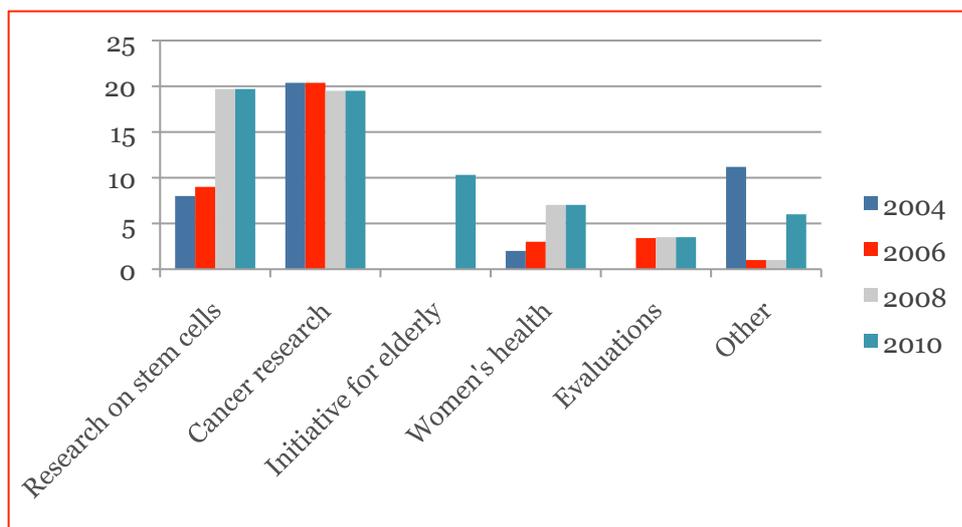
Figure 20: Funding to programme themes, 2004-2010 (MNOK)



Source: Allocation letters from HOD to RCN, 2004, 2006, 2008 and 2010

The strategic initiatives were generally short-lived, and it is therefore more difficult to identify patterns. Figure 21 shows the development of strategic initiatives for the years 2004, 2006, 2008 and 2010.<sup>22</sup> Cancer research was always a prioritised area, and funding for research on stem cells grew significantly after 2006 – probably as a result of a shift from a conservative to leftist government, as the conservative government did not allow research on embryonic stem cells – and was in 2008 transferred from a strategic initiative to a programme. There was also a growth in funding for women’s health after 2006. RCN has been specifically commissioned to conduct a couple of extensive evaluations during the period.

Figure 21: Funding to strategic initiatives, 2004-2010 (MNOK)



Source: Allocation letters from HOD to RCN, 2004, 2006, 2008 and 2010

<sup>22</sup> All listed types of strategic initiatives except two refer to one single item in HOD documents. The exceptions are Evaluations, which comprise Resultatvaluering sykehusreformen and Evaluering mammografiprogrammet, and Other, which comprise Mat og helse, Antibiotikaresistens, Farmakologisk og farmasøytisk forskning, EUs strålevernprogram, Drikkevannforskning, and Rehabilitering og habilitering.

## 5.4 Communication

### 5.4.1 Tone and style in allocation letters

Until 2006 the allocation letters from HOD were notably short, containing mainly a table with a list of programmes and strategic initiatives, and specified sums for allocations to each of them. Thereafter the level of detail increased significantly. The increased level of detail particularly meant considerably more funding earmarked for specific areas within programmes or strategic initiatives, e.g. research on women, nutrition for elderly, osteoporosis, care services etc. The letter of instruction got shorter and less detailed again in 2010, after the common national effort to coordinate allocation letters to RCN.

For all years HOD asked RCN to follow up the results of its programmes; in this respect HOD seems to differ from some other ministries which seem to have developed such requests around 2005. From 2006 and onwards HOD asked for special reports on research in about ten specific fields, e.g. cancer research, research on muscoskeletal diseases, etc.

In 2006 HOD remarked that sector themes often cut across programme boundaries, and that RCN was not attentive enough to that dimension; one effect being that cross-disciplinary research was not visible or supported enough. The annual instructions to report progress in about ten specific fields should also be seen as an instrument to push RCN towards a more holistic view on the sector.

Table 1 presents number of HOD guidelines ('förlinger') per allocation letter for three years. The table should be taken with a pinch of salt; it is difficult to define the difference between an instruction and a guideline. The table should therefore be seen as an indication of the development of the level of details rather than as a precise statistics of guidelines. HOD has throughout the period included few guidelines. The increase in guidelines in 2007 might be connected to the shift in government in 2005.

Table 7: Number of HOD guidelines (international level excluded)

	2003	2007	2010
<b>Number of HOD guidelines</b>	3	8	4

Source: Allocation letters from HOD to RCN, 2003, 2007 and 2010

### 5.4.2 The process behind allocation letters

The allocation letters are preceded by a dialogue first between the Health Directorate, which has representatives on the Research Council's programme committees and then between HOD and RCN, which starts with RCN proposals for the state budget. HOD thereafter sends a preliminary allocation letter to RCN, for input (written and in meetings). A final allocation letter is sent after dialogue with RCN. It seems that RCN has a little less influence on formulations in the allocation letters from HOD compared to letters from other ministries with large budgets for R&D. RCN sometimes tries to propose thematic priorities that HOD should make, by picking up themes in the public debate and identify potential research contributions.

## 5.5 Instruments

### 5.5.1 RCN instruments for HOD funding

Figure 22 shows the budget HOD allocated to RCN in 2011. It illustrates its tight focus on specific health and welfare issues.

Figure 22 Snapshot: HOD budget allocations to RCN, 2011

Tabell 7.2. Departementets bevilgning og andel av forbruk, kroner

	Departementets bidrag		Program/aktivitet totalt			
	Bevilget i år	Beregnet forbruk	Bevilget i år	Disponibelt budsjett	Totalt forbruk	Forbruksprosent
Klinisk forskning	25 250 000	18 034 728	25 250 000	31 052 196	18 034 728	58
Folkehelse	23 050 000	16 986 867	24 050 000	27 949 548	17 723 842	63
Psykisk helse	34 520 000	29 321 200	35 520 000	31 787 681	30 170 623	95
Helse- og omsorgstjenester	72 007 000	64 464 904	73 007 000	90 373 123	65 360 208	72
Evaluering av samhandlingsreformen	1 000 000	521 772	1 000 000	1 000 000	521 772	52
Miljø, gener og helse	16 900 000	19 588 939	22 400 000	29 996 693	25 964 048	87
Rusmiddelforskning	26 450 000	35 183 630	26 950 000	25 792 530	35 848 732	139
Global helse	5 771 000	5 595 323	67 116 200	177 647 020	65 073 249	37
EUs strålevem 7. rammeprog.	1 000 000	811 386	6 000 000	22 650 317	4 868 333	21
Stamcelleforskning	19 700 000	28 048 652	19 700 000	37 163 601	28 048 652	75
Kreftmidler	20 505 000	16 401 694	20 505 000	53 107 623	16 401 694	31
Aldersforskning	4 000 000	6 098 333	4 000 000	7 575 333	6 098 333	81
Alder (Velferd, arbeid og migrasjon)	6 310 000	5 886 006	101 890 000	178 790 224	95 044 418	53
Barn som pårørende	5 000 000	0	5 000 000	5 000 000	0	0
Evaluering av Mammografiogr	3 500 000	1 480 247	3 500 000	6 256 417	1 480 247	24
Kvinner helse	5 935 000	1 800 000	5 935 000	6 552 369	1 800 000	27
Ressursbruk til forskn. i helseforetakene	490 000	520 457	19 391 391	33 316 517	20 597 463	62
<b>Sum totalt</b>	<b>271 388 000</b>	<b>250 744 138</b>	<b>461 214 591</b>	<b>766 011 192</b>	<b>433 036 342</b>	<b>57</b>

Bevilget i år: Departementets bevilgning i løpet av budsjettåret

Beregnet forbruk: Departementets andel av Totalt forbruk beregnet på grunnlag av departementets andel av alle departementenes bevilgninger i løpet av budsjettåret. Over/underforbruk i forhold til departementets bevilgning er en effekt av at aktivitetsnivået i

programmet (Totalt forbruk) ikke er bestemt av det enkelte års bevilgning, men av bevilgningene over hele program/aktivitetsperioden. I løpet av program/aktivitetsperioden vil summen av de årlige bevilgninger være lik summen av beregnet forbruk for det enkelte departement.

Bevilget i år: Departementenes samlede bevilgninger i løpet av budsjettåret

Disponibelt budsjett: Departementenes samlede bevilgninger i løpet av budsjettåret pluss overføringer (underskudd/overskudd) fra tidligere år.

Totalt forbruk: Totalt forbruk i budsjettåret

Forbruksprosent: Totalt forbruks andel av Disponibelt budsjett

Source: RCN Annual Report, 2011

All HOD funding through RCN is channelled into programmes or strategic initiatives. Most programmes are clearly dominated by HOD. HOD (and perhaps also RCN) wants fewer, bigger programmes – the small ones are more expensive to administer for RCN. Although it would prefer more integration with funding from other ministries HOD is happy with RCN's work to set up programmes across sector boundaries. RCN finds that work difficult; ministries are often a bit reluctant to depart from what they see as their core activities Table 8 shows that RCN seems to find it increasingly difficult to mix HOD allocations with funding from other ministries.

The programmes are often initiated by HOD, either by recommendation from RCN or by the ministry's own initiative (based i.e. on recommendations from White papers etc.). When HOD initiates a programme it turns to RCN. First a collaboration group creates a programme plan which HOD comments on and eventually decides to support. Then RCN takes over. HOD always leaves it completely open to RCN to make decisions within programmes. Moreover, HOD leaves it to RCN to invite other ministries into the programme.

Each year RCN has reported the development of each HOD-programme in a relatively detailed manner, especially given the fact that many HOD-programmes have been comparably small in size and often only comprised 5-10 projects.

Table 8: HOD participation in RCN programmes 2003, 2007 and 2011

Year	No of programmes	NO OF PROGRAMMES IN WHICH OTHER MIN. PARTICIPATED	NO OF PROGRAMMES IN WHICH OTHER MIN. PARTICIPATED, EXCL. KD
2003	9	6	5
2007	9	7	6
2011	9	4	1

Source: RCN Annual reports 2003, 2007 and 2011

### 5.5.2 HOD use of RCN programme committees

HOD tries to avoid detailed steering of RCN programmes. HOD has chosen not to be represented in programme committees, which includes not to have an observer role. Instead, it has let the National Directorate of Health represent the ministry in the committees. Between 2003 and 2010 HOD has been represented in seven RCN committees. After 2005 HOD has only been represented in two committees. The interviewee at HOD observes that the low representation in programme committees is one (although minor) reason to its growing demand on documentation and reporting. During the last years the National Directorate for Health has also given the ministry an annual report on its representation in the programme committees.

## 5.6 The role of RCN

### 5.6.1 National competition

HOD has quite strongly supported RCN allocating funding to research projects based on scientific merits. However, HOD will allocate earmarked money as part of capacity building (not research projects). The choice of research centres is made through national calls. The most notable case was the initiation in 2007 and 2008 of five centres for research on social care, distributed throughout Norway, and RCN was instructed to direct earmarked support to each of the five centres.

Theoretically, funding to RHF's might be a risk for the quality of research. Even if the RHF's distribute most of the resources in a competitive manner, the number of competitive research groups can be expected to be lower on the regional than on the national level; less competition is generally expected to result in a lower quality of research. However, this theory-based expectation seems not to be reflected in evaluations and in HOD data on e.g. output of scientific publications; those analyses report a generally high and increasing quality of research.

### 5.6.2 RCN in the national innovation system

For 2006-2011 HOD specified in its research strategy that RCN should focus on financing:

- larger national and cross-regional research projects, both in basic (translational) and clinical research
- smaller and midsize studies with the particular aim to ensure the development of methods in areas where it was important to build research capacity

HOD has instructed RCN to collaborate with the RHF's, Innovation Norway, National Directorate for Health and InnoMed in the development of research driven by needs in the healthcare service sector, and to collaborate with Nasjonalt kunnskapssenter for helsetjenesten. RCN has also taken its own initiatives to dialogues with other research funders in the healthcare sector, e.g. the Norwegian Cancer Foundation.

There are also cooperation bodies between the RHF, the universities and the institutes at regional and national levels, most notably Nasjonal samarbeidsgruppe for helseforskning (NSG), where RCN is also present. RCN is also present in the regional bodies that allocate regional research money to the hospitals in the RHF. HOD has within those bodies asked the actors to set up cooperation areas around national priorities, e.g. NevroNor, UniKard and NORSMI, where for some of these initiatives RCN arrange calls and tops up money from the RHF. Overall, the interviewee at HOD thinks that collaboration between RCN and RHF have improved, but should be closer.

HOD has so far not funded innovation activities in RCN. The ministry however has a close collaboration with RCN and supports the work RCN does on innovation in the health sector. Even though innovation in the RHF is not regulated as a main task by law, HOD and NHD has had a long term initiative to increase innovation in the RHF, in collaboration with the National Directorate for Health, InnoMed, RCN and Innovation Norway. The five year strategy was recently extended to a ten year strategy, in accordance with the White paper for innovation. A number of indicators for innovation activities in the RHF have been implemented, and potential for innovation is a criterion when project proposals are evaluated in the RHF.

### *5.6.3 International collaboration*

Until 2010 HOD has in its allocation letters to RCN been notably silent when it comes to international collaboration. However, HOD is positive to internationalisation. The ministry specifies requirements for internationalisation in all the programme plans to RCN. Moreover, HOD and RCN take part in the EU FP7 for health research, and on initiative from HOD RCN has set up a national reference group for EU research to stimulate Norwegian participation in the FPs and the JPI on health. Norwegian researchers are less successful in EU health research programmes, e.g. in FP7, although the outcome has recently improved. HOD has also created incentives for the RHF to promote international research collaboration. Instructions from HOD on the international dimension have never specified single countries or regions beside the EU. However, HOD supports efforts by RCN to increase research collaboration with, amongst others, the NIH for example in the areas of comparative effectiveness research and research in mental health and drug abuse

### *5.6.4 RCN as a partner for dialogue on research strategies*

HOD underlines that it uses RCN extensively as a partner for dialogue on all kinds of research and innovation issues. However, RCN suggests that it could play a heavier role. Typically HOD uses RCN for hearings together with other institutions in the healthcare sector. HOD and RCN also have meetings to discuss different issues related to research financed through RCN. Since the sector contains several strong and science-oriented organisations, RCN sometimes finds that it has problems to make its voice heard. RCN tries to establish its role in part by developing relations with other actors in the field. HOD also regularly uses RCN to conduct evaluations.

### *5.6.5 RCN reporting*

HOD has high expectations on reporting, as it wants to match research efforts with illness burdens as a means to better prioritise research. It therefore needs to monitor ongoing efforts to channel resources to needing fields. In that light HOD finds the MBO system far too unspecific. HOD needs to publicise and manage results at a more detailed level, and has therefore started to use the Health Research Classification System (seven categories). RCN and the RHF are currently starting to use that system. Hence, the information will become comparable.

Overall HOD means that RCN has developed its reporting well according to the requirements from HOD. However, HOD would strongly like RCN and other research actors to evaluate or make visible the societal benefits of the research it funds more than RCN does today.

## 6. Ministry of Fisheries and Coastal Affairs

### 6.1 Context

The Ministry of Fisheries and Coastal Affairs (FKD) focuses its funding through RCN mainly on strategic and applied research. FKD also funds research institutes in the marine sector directly. It regards ‘pure basic research’ to be the task of the universities, funded by the Ministry of Education and Research (KD). However, FKD consider the universities as invaluable providers of basic knowledge and competence in the marine sector and funds university research through RCN programmes.

FKD has overall responsibility for the management of sea-related issues. That way FKD is highly international: Norway is the world’s second largest exporter of seafood and world leading in management of seas, as it controls large sea areas.

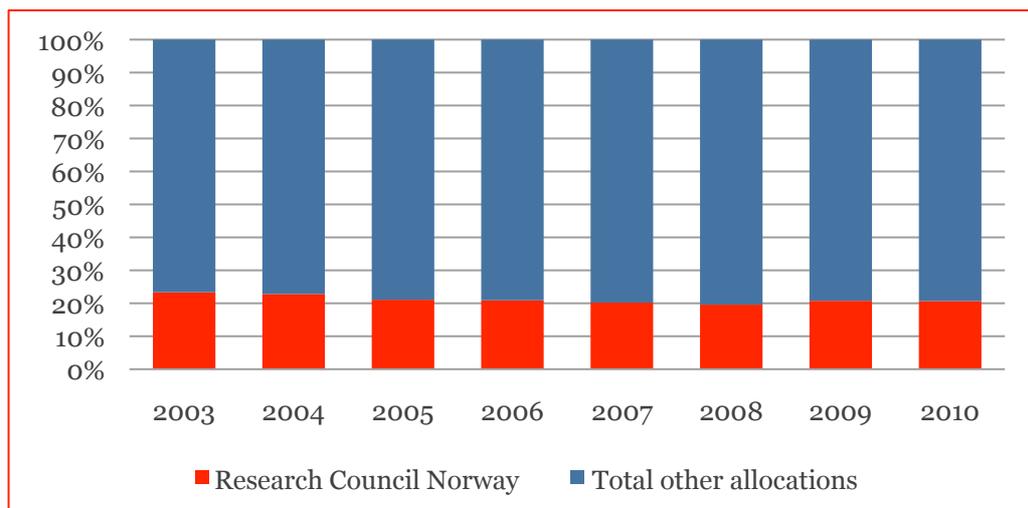
Management of seas includes e.g. fish stocks, environmental impact, coasts and the Arctic and requires large sets of solid and constantly updated knowledge, for example on the locations and sizes of shoals of different types of fish. Collecting that type of information involves systematic and regular surveillance and research, which is not suited for RCN funding. FKD therefore distributes the largest part of its R&D budget directly to other sources, such as Havforskningsinstituttet (Institute of Marine Research, HI), an institute directly funded by FKD.

Political decisions to develop Northern Norway often land on FKD’s table, e.g. a large codling station near Tromsø and marine bioprospecting in the Arctic. In addition, FKD also has responsibility for oil spills, waterways and ship wrecks .

### 6.2 Budget allocations to research and innovation

Between 2003 and 2010 FKD expanded its allocations to research and innovation from MNOK 985 to MNOK 1 544<sup>23</sup>. There was zero growth in allocations to RCN. The effect was a slight decrease from about 23 per cent in 2003 to about 20 per cent in 2010, see Figure 23. In absolute numbers, FKD allocations to RCN increased from MNOK 230 in 2003 to MNOK 319 in 2010.

Figure 23: RCN's share of FKD allocations to Research and Innovation 2003-2010

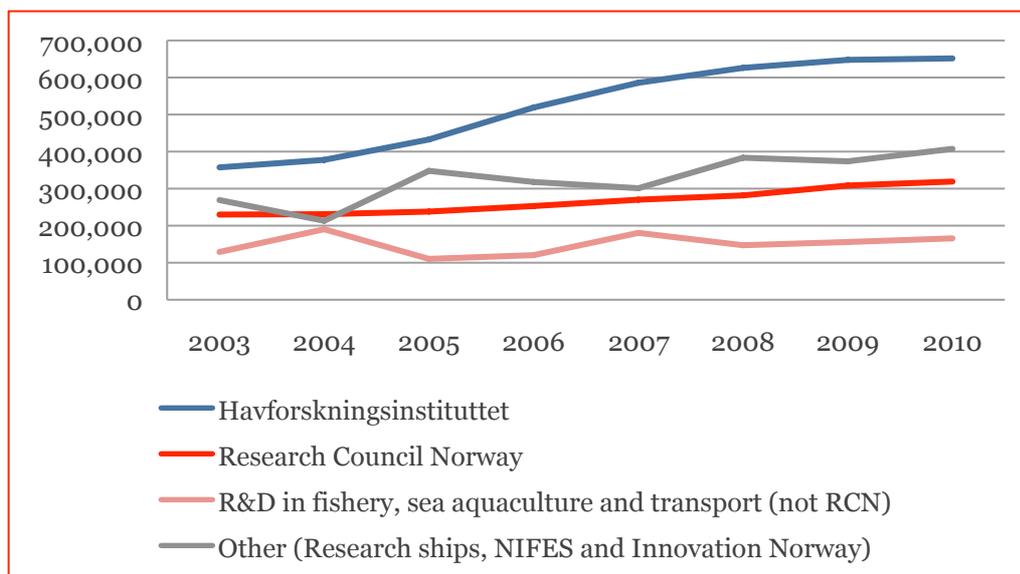


<sup>23</sup> All economic data in this document refers to current prices.

Source: Government's annual Budget bills, FKD's sector bills, 2005-2012 (Financial statements for 2003-2010)

FKD increased its support to other activities more – notably to the HI. FKD also directly funds the institute NIFES, which is much smaller than HI. The development of FKD allocations to key activities in research and innovation between 2003 and 2010 are shown in Figure 24. RCN has over time increased its share of the budget item that covers RCN.

Figure 24: FKD Allocations to Research and Innovation 2003-2010 (kNOK)



Source: Government's annual Budget bills, FKD's sector bills, 2005-2012 (Financial statements for 2003-2010)

### 6.3 Strategies

Throughout the investigated period, 2003-2010, FKD emphasised applied research in its communication with RCN. That reflects well FKD strategies for research and innovation, which are focused on strengthening sea-based value chains and environmental protection. During those years FKD mainly focused on aquaculture and marine ecosystems. FKD has also presented national priorities for Northern Norway and on climate, marine bioprospecting and gender issues, and initiated the development of a broad national strategy for research in the marine sector, Hav21.

#### 6.3.1 Aquaculture

FKD has a broad interest in aquaculture, covering the full value-chain from effects on the marine ecosystems to consumer marketing and effects on human health. The interest in aquaculture has focused on salmon, cod and seafood. The emphasis on aquaculture has increased from 2005 and onwards.

#### 6.3.2 Marine ecosystems

Concerns regarding climate and other environmental aspects have increased FKD interest in marine ecosystems. Since around 2008 marine bioprospecting (exploration of the sea for unknown and useful species or biological functions) has been highlighted as a key interest, probably both for environmental and economic reasons. It is also part of the national strategy for Northern Norway. Between 2007 and 2008 the funding of marine ecosystems and marine environment increased from MNOK 120 to MNOK 170.

### 6.3.3 National priorities

From around 2007 and onwards, FKD strategies were notably influenced by two overarching perspectives: Northern Norway as a strategic area, and climate issues. These perspectives were reflected particularly in the marine ecosystems research. Northern Norway was also to some extent reflected in directives of where to allocate funding. For most of the period, FKD also asked RCN to consider gender issues.

### 6.3.4 HAV 21

FKD has taken the initiative to a broad national research strategy, Hav21, on the marine sector in Norway. A steering board with broad representation deals with marine strategies. The work with Hav21 was initiated in 2011. RCN acts as secretariat and has in that position been relatively influential.

## 6.4 Communication

### 6.4.1 Tone and style in allocation letters

Throughout the investigated period FKD seems to have developed a more instrumentalist view on research and innovation. This is demonstrated by the increased emphasis on strategies and prioritised fields, in particular during the second half of the period. It is also demonstrated by an increased emphasis on economic value, and in the requests from 2008 and onwards that RCN conducts risk analyses of where to allocate funding.

One example of the more instrumentalist view is how the view of ‘management of seas’<sup>24</sup> appears to have changed from being a ‘moral national matter’ to become a strategic issue that could be a competitive advantage for Norway. Hav21 should be seen as an outcome of this shift.

The more instrumentalist view also resulted in FKD becoming a bit more ‘directive’, devising sometimes not only to which area funding should be allocated, but also which results that were desirable. One of the most obvious examples is an instruction in 2008, where FKD asked for ‘research that can contribute to explain the impact of the marine environment on seafood safety and quality’, on the ground that ‘there is an increased need to document that Norwegian seafood is caught or produced in a clean, aquatic environment’.

The directives from FKD were overall relatively detailed. The level of detail was highest in the years 2005-2009, a bit lower in 2010, and clearly lower in 2003-2004. The level of details particularly concerned inclinations from FKD to identify exact problems rather than to specify areas of interest, and to point out to which institutions RCN funding for specific problems should be allocated. However, FKD rarely earmarked sums of money. Also, FKD generally does not involve in how RCN carries out the tasks; FKD gives RCN relatively much freedom to act and has only to a limited extent directed its allocations towards specific programmes or projects. RCN does not find the level of details problematic.

The level of detail was generally highest in the aquaculture field. For several years, FKD highlighted research on sea louse as being highly prioritised. Most years it also pointed out relatively specific areas, e.g. fresh fish, marketing research, counting of minke whales<sup>25</sup>, pathological investigations of marine mammals, quality of food, and effects of food on humans as areas to be covered by RCN.

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<sup>24</sup> The Norwegian term ‘forvalting’ is here translated as management. The translation might not be completely straightforward, as forvalting might refer to less active engagement – i.e. ‘care-taking’ – than the management term indicates.

<sup>25</sup> This task has now been given directly to HI, and is no longer a concern for RCN.

One example of a detailed instruction – which includes an indication of expected point of departure – is from 2006, when FKD wrote: ‘Research on ecosystems in the coastal zone is central for the development of industry and public management, and should therefore be increased. In this context the kelp forest and its role on the ecosystem is particularly central.’

The level of FKD guidelines has been relatively stable over time, see Table 9. The counting of guidelines is difficult; the figures in the table should be seen as rough estimate rather than an exact amount.

Table 9: Number of FKD guidelines (international level excluded)

	2003	2007	2010
<b>Number of FKD guidelines</b>	8	12	11

Source: Allocation letters from FKD to RCN, 2003, 2007 and 2010

#### 6.4.2 The process behind allocation letters

The process behind an allocation letter typically goes as follows: 1. FKD drafts a letter. 2. RCN comments on the draft. 3. FKD revises and finalises the letter. The commenting normally takes place during a meeting, which leaves room for discussions. Both FKD and RCN find the process to be efficient and harmonious. FKD observes that RCN for example might want to make a guideline more specific, so that it can show the guideline to e.g. a research environment when implementing it.

#### 6.4.3 Other communication

The dialogue between FKD and RCN seems to be fruitful and relatively close. The dialogue has improved subsequently during the investigated period.

### 6.5 Instruments

#### 6.5.1 RCN instruments for FKD funding

Figure 25 shows FKD’s budget allocations to RCN for 2011. It illustrates the ministry’s tight focus on its sectoral remit.

Figure 25 Snapshot: FKD budget allocations to RCN, 2011

Tabell 4.1 Bevilgning og forbruk for FKD for 2011. Beløp gitt i kroner.

		Departementets bidrag		Program/aktivitet totalt			Forbruksprosent
		Bevilget i år	Beregnet forbruk	Bevilget i år	Disponibelt budsjett	Totalt forbruk	
<b>Store programmer</b>							
Havbruk - en næring i vekst	HAVBRUKS	78 600 000	96 276 426	107 574 404	99 785 041	122 225 790	122
Forskning innenfor fiske- og dyrevaksiner	HAVBRUKS	20 000 000	24 497 818	27 372 622	25 390 596	31 100 710	122
NORKLIMA	NORKLIMA	2 000 000	1 832 814	101 930 000	30 911 211	93 410 827	302
Delfinansiering av laksens genom	HAVBRUKS	4 000 000	4 899 564	5 474 524	5 078 119	6 220 142	122
FUGE	FUGE	13 000 000	5 416 779	225 150 000	249 847 312	93 814 916	38
<b>Sum</b>		<b>117 600 000</b>	<b>132 923 401</b>	<b>467 501 550</b>	<b>411 012 279</b>	<b>346 772 385</b>	
<b>Andre programmer og satsinger</b>							
Natur og næring		10 750 000	11 483 999	471 523 449	618 157 069	486 128 185	79
MABIT	MABIT	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	100
Miljø 2015	MILJØ2015	1 500 000	1 878 670	63 833 768	66 026 729	79 950 197	121
Næringslivets transport og ITS	SMARTRANS	1 000 000	1 211 058	21 000 000	26 119 098	25 432 234	97
ELSA-programmet	ELSA	1 000 000	718 641	6 114 019	14 515 890	4 393 799	30
Havet og kysten	HAVKYST	46 600 000	46 474 890	89 350 000	80 652 771	89 110 199	110
Maritim virks. og offshore-operasj.	MAROFF-2	2 900 000	2 984 421	135 715 737	179 163 501	139 667 795	78
Matprogrammet	MATPROG	25 250 000	26 857 384	158 024 963	166 850 113	168 085 563	101
Transportsikkerhet	TRANSIKK	1 000 000	221 330	10 800 000	22 298 841	2 390 374	11
<b>Sum</b>		<b>96 000 000</b>	<b>97 830 393</b>	<b>962 361 936</b>	<b>1 179 784 012</b>	<b>1 001 158 346</b>	
<b>Innovasjonstiltak/Kommersialisering</b>							
FORNY	FORNY20	4 000 000	4 603 902	107 750 000	127 839 055	124 020 852	97
<b>Sum</b>		<b>4 000 000</b>	<b>4 603 902</b>	<b>107 750 000</b>	<b>127 839 055</b>	<b>124 020 852</b>	
<b>Frittstående prosjekter</b>							
Strålevern, EUs 7. rammeprog	EU7-STRA	1 000 000	811 386	6 000 000	22 650 317	4 868 333	21
<b>Sum</b>		<b>1 000 000</b>	<b>811 386</b>	<b>6 000 000</b>	<b>22 650 317</b>	<b>4 868 333</b>	
<b>Infrastruktur</b>							
Basisbevilgning - primærnæringsarenaen		92 833 000	93 837 825	245 126 000	246 054 994	246 131 000	100
Videreføring av SIP ved HI og NIFES	SIPHINIFES	23 506 000	23 328 918	27 356 000	29 831 594	27 149 916	91
<b>Sum</b>		<b>116 339 000</b>	<b>117 166 743</b>	<b>272 482 000</b>	<b>275 886 588</b>	<b>273 280 916</b>	
<b>Diverse FoU-aktiviteter</b>							
Informasjon, formidling, publisering		1 920 000	1 516 802	12 080 625	21 246 618	9 124 753	43
Planlegging, utredning, evaluering		400 000	424 864	19 391 391	33 316 517	20 597 463	62
Regionale representanter	REGREP	600 000	656 949	14 915 000	15 870 491	16 331 047	103
Prosjektetableringsstøtte (EU/Eureka)	PES-INST	2 500 000	3 178 738	26 200 000	26 234 693	33 313 475	127
Bilateralt samarbeid	INT-BILAT	500 000	425 762	25 050 000	28 032 217	21 330 776	76
Øvrig int. samarbeid og nettverksbygging		2 265 000	1 236 928	2 497 680	68 863 367	1 258 321	2
Samfinansiering EU-kontoret	SAM-EU	500 000	1 699 626	3 000 000	5 476 859	10 197 794	186
Nasjonale forsk. etiske komitéer	ETIKK	400 000	365 658	12 000 000	13 519 457	10 969 841	81
<b>Sum</b>		<b>9 085 000</b>	<b>9 505 327</b>	<b>115 134 696</b>	<b>212 560 219</b>	<b>123 123 470</b>	
<b>Disposisjonsfond</b>							
Disposisjonsfond	DISP-FKD	36 000	0	36 000	168 083	0	
<b>Sum totalt</b>		<b>344 060 000</b>	<b>362 841 152</b>	<b>1 931 266 182</b>	<b>2 229 900 553</b>	<b>1 873 224 302</b>	<b>84</b>
Bevilget i år: Departementets bevilgning i løpet av budsjettåret							
Beregnet forbruk: Departementets andel av Totalt forbruk beregnet på grunnlag av departementets andel av alle departementenes bevilgninger i løpet av budsjettåret. Over/underforbruk i forhold til departementets bevilgning er en effekt av at aktivitetsnivået i programmet (Totalt forbruk) ikke er bestemt av det enkelte års bevilgning, men av bevilgningene over hele program/aktivitetsperioden. I løpet av program/aktivitetsperioden vil summen av de årlige bevilgninger være lik summen av beregnet forbruk for det enkelte departement.							
Bevilget i år: Departementenes samlede bevilgninger i løpet av budsjettåret							
Disponibelt budsjett: Departementenes samlede bevilgninger i løpet av budsjettåret pluss overføringer (underskudd/overskudd) fra tidligere år.							
Totalt forbruk: Totalt forbruk i budsjettåret							
Forbruksprosent: Totalt forbruks andel av Disponibelt budsjett							

Source: RCN Annual Report, 2011

Both FKD and RCN find that the allocations of FKD funding to various programmes occurs after a fruitful dialogue. Each year RCN informs FKD about its intentions of how to use FKD funding, and FKD normally does not object.

RCN has mainly used FKD funding for applied research. The balance between basic and applied research appears to have been stable during the investigated period. However, that conclusion needs to be partly drawn based on overall impression of RCN reports; between 2003 and 2005 RCN did not report distribution on the basic-applied scale. Between 2006 and 2009 the RCN portfolio analyses have shown that about 70-80 % of FKD funding was allocated to applied means and about 15-20% was allocated to basic research. The remainder was allocated to internationalisation.

FKD funding that RCN distributed was often channelled through large programmes. With the exception of the early period, those programmes were almost always funded by

resources from several ministries, see Table 10. Overall, FKD appears to have looked positively at large programmes as a concept for distributing R&D funding. FKD funding through large programmes went up significantly in 2006. Calls were sometimes made in cooperation between two or more large programmes.

The two largest programmes for FKD funding after 2006 were HAVBRUK and Havet og kysten. HAVBRUK was directed towards the basic production in seabased aquaculture. The programme addressed both research and innovation, in particular in the seafood and salmon industries. Havet og kysten was comparably more focused on basic research, in particular on marine ecosystems and environmental issues. It addressed administrative needs to preserve marine ecosystems and increased value-creation from sea- and coastal resources.

The remainder of FKD funding was mainly channelled through user-directed innovation programmes and action-oriented programmes. The latter two types of programmes lost significance after the introduction of new large programmes in 2006, but still comprised a substantial amount of resources. A significant share of funding also went directly via RCN as direct (basic) funding to FKD-supported research institutes.

Table 10: FKD participation in RCN programmes 2003, 2007 and 2011

Year	No of programmes	No of programmes in which other min. participated	No of programmes in which other min. participated, excl. KD
2003	1	0	0
2007	11	9	8
2011	11	10	8

Source: RCN Annual reports 2003, 2007 and 2011

### 6.5.2 FKD use of RCN programme committees

FKD has been moderately represented in RCN committees between 2003 and 2011. FKD were represented in a total of 11 committees between 2003 and 2011. At present FKD is represented by two observers; one in each of the committees for the two programmes which dominate FKD funding: HAVBRUK and Havet og kysten.

RCN finds it useful to have observers from FKD in the committees, to avoid myths being created and alienating the ministries that fund the programmes. The observer role has grown in importance during the last years, as research has got more political as an increasingly acknowledged goal for sustained societal welfare; politicians need to see and understand what is being done.

FKD finds the composition of programme committees to be appropriately balanced between sectors, and that the public sector should leave the floor to business and science. However, RCN is of the opinion that FKD observers at some occasions have tried to involve themselves more than they are supposed to do. However, it generally works well.

## 6.6 The role of RCN

### 6.6.1 National competition

Although FKD have not been against competition between national research groups – it has for example accepted that a significant extent of its allocations to RCN are distributed via competitive national programmes – it has at the same time instructed RCN *not* to increase national competition, in particular with regard to research institutes funded directly by FKD.

Before 2007, FKD typically pointed at the need for continuity and consolidation of existing research environments. They were also relatively prone to point out which institution that should do what, which to some extent undermines competitive funding schemes.

After 2007 FKD has mostly focused on its own institutes. FKD often place specific questions on their institutes, mostly Havforskningsinstituttet. In 2009 FKD requested RCN to support the new division of research institutes in the marine sector, e.g. in allocation of research funding, and to not support the creation of rival research environments elsewhere. The new division of research institutes comprised Nofima, which was intended to conduct industry-oriented research, and Havforskningsinstituttet and NIFES, which were instructed to conduct administration-oriented<sup>26</sup> research. The division of labour was because FKD did not want any of the institutes to be questioned for having double loyalties. The new institute, Nofima replaced several smaller institutes.

RCN thinks that FKD requests sometimes go a bit too far and occasionally prevents some research groups or organisations from competing for tasks they are well qualified to do. RCN is under pressure from universities, which want to be able to attain more funding in the sector, and want more basic research funding. RCN would prefer to take steps in that direction.

#### *6.6.2 RCN in the national innovation system*

FKD thinks that RCN has gradually grown into a role that works quite well. A couple of years ago, FKD found RCN to be too defensive. Now RCN acts with more self-confidence and uses its authority in a better way. However, RCN could take on a heavier role still.

Both RCN and FKD think that RCN has sufficient relations and collaborations with other actors in the national innovation system. The relations with SIVA and Innovation Norway are however not as important in the marine sector as in other sectors. The relation between RCN and Fiskeri- og havbruksnæringens forskningsfond (FHF) was problematic for several years, but is now better..

#### *6.6.3 International collaboration*

FKD is happy with RCN on international issues. FKD has repeatedly instructed RCN to develop international collaboration with strategic partners. The strategic partners that FKD pointed out were USA, Canada, India, Japan, and the EU. RCN also facilitates good relations with Russia, which has several string research environments in FKD sector. FKD further stressed the international dimension after 2007.

RCN has had a considerable influence over FKD in promoting participation in EU Framework Programmes and Joint Programming Initiatives. RCN has also taken the initiative to get Norway into several ERA-NETs. During last years the Norwegian government has lead the development of a large EU-program on healthy and productive seas and oceans, and worked for its inclusion in FP8. RCN was a key partner in that work. The work might have been spurred by RCN reports on consistent Norwegian success in marine and maritime research in FP6 and FP7, which FKD is happy about.

The instructions from FKD were normally not particularly detailed, however, international collaboration with Canada and Chile on sequencing the genome of salmon, and requests for international collaboration on how to handle the problem with sea louse, appeared to be of particular interest to FKD. RCN appears to have followed the instructions from FKD well, and reports in detail.

#### *6.6.4 RCN as a partner for dialogue on research strategies*

FKD is happy with RCN as a partner for dialogue on research strategies, and finds that RCN works effectively and has several highly competent staff in its sector. FKD is especially happy that RCN responds well and constructively to upcoming problems that need to be addressed shortly, e.g. the problem with sea louse. FKD has included RCN as a partner in developing FKD's research strategy. RCN has also been used as a partner in FKD's dialogue with the government. FKD appreciate the legitimacy that RCN provide.

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<sup>26</sup> 'Forvaltningsrettet'

FKD is also happy with RCN office in Brussels. RCN thinks that FKD has turned to RCN more during last years than before.

#### *6.6.5 RCN reporting*

FKD is happy with RCN reporting, which they find detailed and accurate. Each year RCN presents the annual report to FKD and discuss the results. However, the FKD finds the report and the occasional lack of changes from year to year to reflect an internal management structure at RCN that could possibly be a bit more authoritative. FKD finds the MBO system fit for purpose, but does not have the full picture and detailed knowledge, and prefers to wait before judging on its usefulness.

## 7. Other ministries

In this chapter the accounts of the five key ministries are complemented with the views of the remaining ministries views on primarily the role of RCN as a strategic advisor to the ministries, and the ministries' views on the MBO-system. The accounts are based on interviews with heads of research divisions or the equivalent at the respective ministries.

The report covers six of the eleven remaining ministries; two (Ministry of Finance and Ministry of Government Administration, Reform and Church Affairs) did not want to participate and three (Ministry of Children, Equality and Social Inclusion, Ministry of Culture and Ministry of Foreign Affairs) did not respond to the inquiry.

### 7.1 Ministry of Labour

#### 7.1.1 RCN as a strategic advisor

RCN supports the Ministry of Labour (AD) with strategic advice primarily in three ways. Firstly, RCN provide budget proposals and comments on the draft of the allocation letter with suggestions on how allocations from the AD should be spent. Secondly, RCN proposes new programmes – often across ministry sectors – in which the AD could possibly participate. Thirdly, RCN also supports the AD by conducting research-based evaluations of major reforms of the welfare sector; the AD has for example used RCN to evaluate the large pension reform.

In addition to those three ways, RCN also supports the AD with advice on for example international issues. There is a relatively close dialogue between the AD and RCN, which facilitates quick responses from RCN to inquiries from the AD of the type 'What does Norway do in Nordic collaborations in the welfare issues?'

The interviewee at the AD finds RCN competent and interested in maintaining a good and constructive dialogue with the AD and other actors in the AD-sector. The interviewee also finds RCN to be good at initiating cross-sectoral programmes and to respond to the interests of for example municipalities. On all those points RCN has significantly improved during the last decade; they have improved their understanding of the needs and situations of other actors in the AD sector and they have been succeeded well in the often difficult balance between interests of ministries.

However, the AD would like RCN to conduct deeper and more research-based analyses of its sector. RCN seems unwilling to take that role. On what parts of the AD sector is there much on-going research? On what parts is more research needed? What quality does research in different parts of the sector hold? Such analyses would provide a much useful basis for the AD, and possibly more effective research policy. The AD also finds that no other actor is sufficiently placed to do such analyses; that role belongs to the potential added value with RCN as an advisor. The AD does however not see much need of macroeconomic analysis from RCN, although that aspect is not irrelevant to the AD.

The AD also finds RCN to be a bit uncritical to why it is important to internationalise research. Is internationalisation important for quality or for networks? The AD finds that RCN does not motivate its strategies well enough. To the AD as a sector ministry, internationalisation is primarily a means, not a goal in itself – although the ministry is comparably national in focus, internationalisation could certainly be of interest, but primarily by providing comparative research.

#### 7.1.2 The new MBO-system

The AD finds the new MBO system partly useful. The AD has used primarily two of the goals to develop indicators for internal use. They use the indicators primarily to distribute funding between different programmes. The ministry is mainly interested in the capacity

and relevance of the Norwegian research in its sector. They are less interested in using the system to govern RCN, although they see the potential in using indicators to monitor also RCN. The system is generally too ambitious and too broad to fulfil the needs of the AD – the interviewee finds that the system seems useful primarily to KD. The system also does not fit very well with how the AD prefers to write the allocation letters.

## 7.2 Ministry of Justice and Public Security

### 7.2.1 RCN as a strategic advisor

RCN supports the Ministry of Justice and Public Security (JD) primarily by initiating and running programmes with relevance to the JD sector. Beside the programmes, RCN maintains a good dialogue with the JD on issues strategic to the JD. For example, RCN recently has provided expert advice on the content of a key JD programme, and they have collaborated closely with the immigration department at the JD in the development of a special initiative directed towards international migration. The JD also uses RCN for international issues, but does not have research collaborations outside Europe. The dialogue between the JD and RCN is mostly formal; the JD notes that RCN in addition would like to have more informal dialogue, but the JD has not responded to that wish.

The JD is generally pleased with the work of RCN; they find that RCN does a good job to arrange and run programmes, both nationally and internationally – the JD is notably pleased with RCN's work and information on EU framework programmes. They are also pleased with the work RCN has done nationally to highlight the importance of security research.

The JD finds that RCN could be a bit more proactive when it comes to offering its advice to the JD; research and development is not an area the ministry prioritises – the ministry for example does not have a research strategy. On the other hand, the interviewee notes, RCN regularly approaches the JD with advice and offer their support, but the JD is not as responsive as RCN (probably) would like them to be, for example with regard to the annual process around the allocation letter.

### 7.2.2 The new MBO-system

The JD makes very little use of the new MBO-system or any other indicators. That is mainly because the JD is a small research funder, and they channel only a small sum through RCN. However, the JD nevertheless appreciates the system; it helps to highlight the overarching goals of RCN-funded research. The ministry uses goals 1.1, 1.2, 1.5 and 2.3.

## 7.3 Ministry of Local Government and Regional Development

### 7.3.1 RCN as a strategic advisor

RCN has supported the Ministry of Local Government and Regional Development (KRD) for example with advice on the Regional Research Fund and with advice on how to support innovation research directed towards the business sector. Through the annual budget proposal RCN also provides advice on which priorities the KRD should make. The KRD makes use of that advice. However, the KRD does not see RCN as a key partner in developing ministry strategies; RCN is in the eyes of the KRD an actor to implement policy – not to develop policy. The KRD has no interest in the international dimension of research.

The KRD is generally pleased with RCN; they find RCN to be competent and fulfilling its role in a good way. RCN in effect acts as a lobbyist for research and innovation issues, which to some extent has meant that those issues have become highlighted with in the KRD. The KRD is pleased that RCN collaborates with other actors in the research and innovation system.

The KRD does not find that RCN need to in any significant way improve or expand its current role. The ministry also notes that there is generally little room for research-based advice within its sector.

### 7.3.2 *The new MBO-system*

The KRD primarily uses the allocation letter and annual reports to govern RCN. They do not govern with the help of the new MBO-system. The ministry lacks geographical indicators in the system; geography is a key dimension to the KRD. The interviewee at KRD has this far not observed any substantial effects on its own behaviour or on the behaviour of RCN following the introduction of the new MBO-system.

## 7.4 Ministry of Agriculture and Food

### 7.4.1 *RCN as a strategic advisor*

The Ministry of Agriculture and Food (LMD) uses RCN widely and relatively extensively for a dialogue on research and innovation policy. The LMD channels all its resources for research through RCN. RCN has also supported LMD work by strengthening networks between actors in the LMD sector, in particular by initiating cross-sectoral programmes that involve a relatively broad range of actors. RCN plays an important role to the LMD; the ministry frequently asks RCN for advice. The LMD pays relatively much attention to the international dimension and mainly uses RCN for advice on international issues.

The LMD finds that RCN in general does a good work; they in particular appreciate cross-sectoral initiatives and the work RCN has done with the FME-centres. They are also pleased with the work RCN does on the international issues.

The LMD points out two aspects on which they would prefer RCN to improve. Firstly, they find that RCN could do better work with the institute sector; to take more responsibility for the institutes and to give better advice to the LMD on that sector. Secondly, the ministry would like RCN to do more deep analyses of the LMD sector – such analyses would better enable the ministry to address the broad challenges in the sector, and a better understanding of thematic priorities as well as the performance of for example the institute sector.

### 7.4.2 *The new MBO-system*

The LMD does not make much use of the new MBO-system. They use indicators to monitor work on national priorities and sector relevance, but do not find the indicators to be of great significance for the activities – the LMD has lately reduced its use of the indicators. The LMD governs RCN primarily through the allocation letter and budget, and through the on-going formal and informal dialogue. They do not see much effects of the MBO-system on the activities of RCN and the ministry, primarily because the system is relatively new. The LMD recognises the use of a system to better harmonise the governance of the research system, but finds that it might be more useful if RCN stepped in and took a more active role as coordinator between the ministries, than to use this system.

## 7.5 Ministry of the Environment

### 7.5.1 *RCN as a strategic advisor*

RCN support the Ministry of the Environment (MD) in five main ways. Firstly, and most importantly, they provide budgetary advice that is very important. Secondly, RCN advises the MD on international research. Thirdly, the MD receives advice from RCN with regard to the institute sector. Fourthly, RCN gives advice on follow-up of budgetary work. Finally, RCN also gives advice to the MD on what types of the MD problems that are researchable – the MD has a document with problems it would like research on, and RCN helps to point out useful strategies to have the problems researched. The dialogue between the MD and RCN appears to be relatively close and conducted both formally and informally.

The MD is very interested in international collaborations, for example on climate issues. RCN are crucial to the MD in promoting international research collaborations, and they play a very important role in coordinating Norwegian participation in EU-programmes.

The MD is generally pleased with RCN. The ministry highly values the input from RCN in the budget process; the proposals from RCN provide the background for formal and informal discussions with RCN throughout the year, and also in the MD's internal work as well as in their discussions with other ministries. The MD also appreciates that RCN tries to follow up its advice. The ministry appreciates the new internal organisation of RCN, which has made RCN more efficient. With regard to the international dimension, the MD is "extremely satisfied" with RCN's work.

In the years to come, the MD would like RCN to improve its work on following up their national initiatives in the MD sector. The MD however acknowledges the difficulties of that task; the environmental aspect cuts across all sectors which makes monitoring challenging and difficult to integrate. In the eyes of the MD RCN has clearly improved its work on these issues during the last years, but the MD finds that more work could be done. The MD also finds that the interests of the ministry could be more spread throughout RCN; the MD's research strategy could be more visible in RCN activities.

#### *7.5.2 The new MBO-system*

The MD uses the new MBO-system primarily to monitor capacity, quality and relevance in the Norwegian research system; to monitor research institutes, internationalisation of research; and to monitor research on global challenges. The MD finds indicators on those aspects highly useful. Other indicators are not useful to the MD other than for basic overall understanding of the research system. To the MD, the effect of the MBO system has been that the ministry is now less detailed in its other instructions to RCN. The MD also finds that the system has made RCN departments coordinate their work better. The MD does not see any need for changes in the MBO system.

## **7.6 Ministry of Transport and Communications**

#### *7.6.1 RCN as a strategic advisor*

RCN is the most important advisor on research and innovation to the Ministry of Transport and Communications (SD). However, although the SD welcomes strategic advice from RCN, they underline that they see programme management as the most important role of RCN. The most important strategic input the SD gets from RCN is the annual budget proposal, which the SD uses extensively in their internal processes and which leads up to the allocation letters. The ministry and RCN also have other meetings and informal dialogue when needed. The SD has significant interest in EU Framework programmes, and participates together with RCN in the programme committee for transport. They are also partners in ERA NET Transport. The SD currently has no research interests outside Europe.

The SD is generally pleased with the work RCN does, both on the national and international levels. The quality of the dialogue is good, RCN is responsive and the ministry finds that RCN's activities and advice are well in line with the national priorities. The SD observes that it is difficult to estimate the added value from RCN – research activities are lengthy and uncertain – but see little reason to criticise RCN on that point.

However, the SD thinks that RCN has room for improvement on its advisory role. Most importantly, the ministry would like RCN to be more proactive. Although the SD finds that RCN has improved on that point during the last years, they find that RCN could still do better.

#### *7.6.2 The new MBO-system*

The SD is mostly negative to the new MBO-system and makes little use of it. The ministry sees a risk that such an indicator system gets too much significance, which would result in too much focus on things that can be measured. The SD would like to simplify the

technopolis<sub>[group]</sub>

current MBO-system. Today the ministry makes better use of analyses on research issues, results and challenges than of the list of indicators.

## 8. Discussion

### 8.1 The governance structure

Ministry steering of RCN takes place within a wider context of governance. Many parts are discussed elsewhere in the background reports to this evaluation. Here we briefly describe aspects of that broader governance system to provide a context for the more specific analysis of ministry steering.

The governance structure of the Norwegian research system – including the government budget procedures – means that coordination is a problem. Which actor, or body, plays the role of national coordinator of research and innovation policy? Formally, the highest authority in the governance system is the government, which can choose to prepare decisions through its research committee (regjeringens forskningsutvalg – RFU), comprising a sub-set of ministers chosen by the government. In practice it has tended to be chaired by the Education Minister. RFU was re-established in 2005 as the highest level coordinating and policymaking mechanism for research. It was chaired by the Minister of Education and Science (kunnskapsministeren), and comprised the ministers for trade and industry, labour, finance, fisheries, agriculture, health, oil, environment, development and a secretary of state from the prime minister's office. The ministries that spend money on research have officials who sit on Departementenes forskningsutvalg (DFU).

Internationally, the coordination of national research and innovation policy is increasingly done by Councils that mix ministers and others or that advise government from outside the government structure. The chief role of such Councils is setting directions - including the development of a strategic approach to government intervention in research and innovation, acting as

- A referee
- Doing horizontal co-ordination across ministries and other actors
- Co-ordinating the production of knowledge
- Strategic intelligence
- Vertical steering: guiding agents towards socially desirable goals
- Enhancing the profile of research and innovation<sup>27</sup>

RFU's task is much more narrow, focusing on setting government policy. The wider set of governance tasks is effectively distributed across the government the ministries and agencies in the Norwegian system. Committees to advise government on research and/or innovation policy in Norway have had a troubled and uncomfortable history, during which few have had strong influence. Since the prime minister has never taken, or been allowed to take, overall responsibility, there has been (and still is) no referee at the top of the governance hierarchy<sup>28</sup>. This necessarily influences the way RCN and KD have to do their respective jobs of coordination within the national research and innovation system.

RCN is 'owned' by KD, which therefore looks after it as an organisation. KD formally coordinates research across the ministries. In analytic terms this is 'weak' coordination,

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<sup>27</sup> Erik Arnold and Patries Boekholt (2002), *Research and Innovation Governance in Eight Countries: A Meta-Analysis of Work Funded by EZ (Netherlands) and RCN (Norway)*, Brighton: Technopolis; see also Erik Arnold and Gernot Hutschenreiter, *Chile's National Innovation Council for Competitiveness: Interim Assessment and Outlook*, Paris: OECD, 2009

<sup>28</sup> Erik Arnold, Stefan Kuhlman and Barend van der Meulen, *A Singular Council Evaluation of the Research Council of Norway*, Oslo: Royal Norwegian Ministry of Education, Research and Church Affairs, 2001

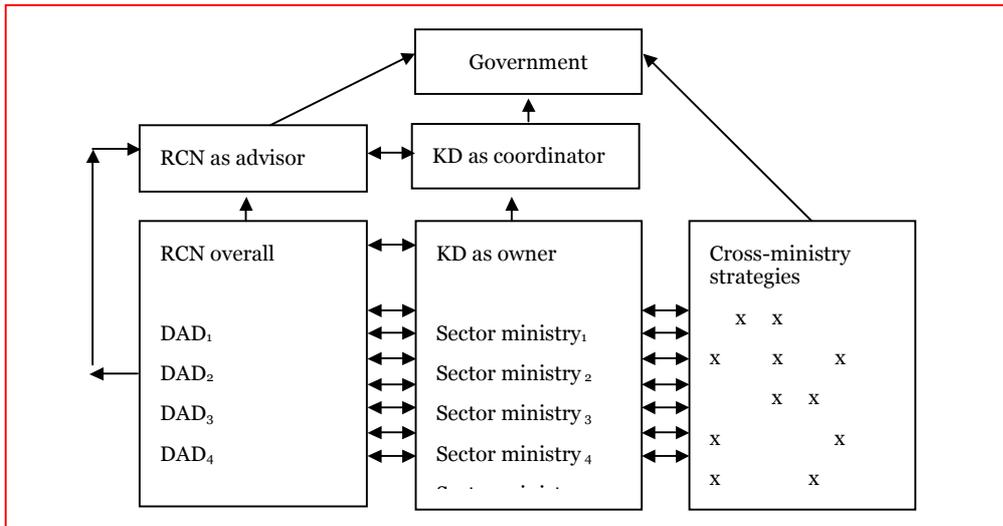
where the role of KD is to collect and share information about the research activities of the various sector ministries and bottom-up to prepare the national research budget. We distinguish this from ‘strong’ coordination, which would involve imposing priorities or reallocating resources among ministries. KD’s leadership of the process of setting national priorities in successive White Papers similarly amounts to ‘weak’ coordination, where the White Paper proposes directions rather than being coupled to mechanisms that impose them<sup>29</sup>. Strong coordination across ministries can only be done with the authority of the government, something that is hard to reconcile with Norway’s strong sector principle.

This lack of strong coordination at the top means that the balance of the structure shown in Figure 26 effectively steers research policy. The arrows represent communication and negotiation links. Since the rules of the game require KD to do ‘weak coordination’ (ie coordination without budget control), a large part of the power to define policy sits in the sector ministries, where it is modulated on two sides. On the one side there is interaction with RCN (and in many cases with other agents – both agencies such as regional health authorities, through which the ministries spent a considerable proportion of their research and research performers such as the Marine Research Institute). RCN devotes considerable effort to ‘add value’ by defining cross-sectoral programmes, which it then tries to ‘sell’ to sector ministries. On the other side, the steering is modulated by the formation of a small but growing number of cross-ministry national strategies, especially in the so-called 2020 processes, where RCN plays a partly agenda-setting role by acting as the secretariat. (This cross-ministry coordination may potentially be reinforced by the appointment of a ‘lead’ ministry for each of RCN’s Large programmes and the role of the four ministries in charge of the institute ‘competition arenas’.) The result is a structure where ministries choose à la carte among strategies on the one side and programmes on the other, in addition to specifying their own specific needs to RCN in the expectation that these will be satisfied through ministry-specific action. The lack of a strong coordinating force at the top combined with the lack of strategic resources at the level of RCN means there are few countervailing forces to the policies of the ministries. Over the last decade, in the hands of KD the Research and Innovation Fund has been such a countervailing force. While replacing the Fund with a new line in KD’s budget made obvious sense in the context of declining interest yields, this runs counter to the original reason for creating the fund: namely, the need for long-term and cross- or inter-sectoral resources in the research and innovation funding system that would not be locked in or subject to the short term political constraints of annual ministry budgeting.

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<sup>29</sup> Jasper Deuten and Patries Boekholt, *Prioritering in kennis- en innovatiebeleid*, Ervaringen uit Canada, Duitsland, Frankrijk en Noorwegen, Den Haag: Ministerie van Economische Zaken, Landbouw en Innovatie, 2009

Figure 26 Norwegian Research Governance and Steering Structure



## 8.2 Steering

Fortunately, the steering relationships we investigated between ministries and RCN appear to be functioning well, at least through the eyes of those in the ministries and RCN operating with a sector perspective. All five ministries studied in detail have increased their funding to RCN during the period. In the cases of HOD and FKD RCN has clearly strengthened its position, while for NHD and OED RCN has retained an already strong or – in the case of OED – completely dominating position as research funding agent to the ministry.

Allocation letters have overall developed positively and become more instrumental and distinct. The number of guidelines has generally not increased and, perhaps most important, the ministries say they listen more than before to RCN when drafting allocation letters. Several ministries would like RCN to say more about thematic priorities, but others argue that RCN in many cases lacks the deep sector knowledge necessary to give advice about this and request more input about how best to use the repertoire of funding instruments available. RCN's key interest in the dialogue with the ministries seems to be to preserve its room to manoeuvre by trying to remove guidelines or to clarify formulations in order to avoid possible problems in implementation. RCN can easily live with earmarked funds, where these earmarks represent the results of discussion with the ministries concerned and are therefore consistent with the intentions of both the ministry and its agency. There is still disagreement between RCN and some ministries about the boundaries between the research the ministries fund directly, in order to satisfy their regulatory and policy needs and other research that could be put into 'competition arenas' in the expectation of assuring quality. In some cases this appears to represent different (and not very explicit) judgements about how to keep research institutes with an administrative or policy mission above critical mass and how to refresh their capabilities.

Despite the overlay of the new MBO system, the operative 'unit of analysis' in the discussion between the ministries and RCN is largely the programme or other activity.

All the ministry people we interviewed are happy with the dialogue with RCN. They all find RCN to be expedient and competent and think that RCN understands their needs. They are also happy with RCN reporting, though reporting needs differ considerably between ministries. NHD and HOD require intensive monitoring and frequent data deliveries, while KD, OED and in particular FKD are less focused on data inputs.

Internationalisation is one of the areas in which the sector ministries are most positive about RCN. They all find RCN competent and efficient to help them with advice and to initiate activities. However, KD and NHD think that RCN is a bit over-enthusiastic about

participation in EU-programmes, and that it should try to find a better and (following NHD) more evidence-based way to prioritise between national and international activities.

All investigated ministries are relatively hands-off RCN. KD and NHD try to avoid even thematic priorities, while HOD, OED and FKD typically steer most of their allocations towards (usually broad) themes or research fields. In addition, the ministries generally stay out of the programme committees except as observers. There is no real example of a ministry involving itself too much in an on-going programme or in the selection of individual projects. In fact, the problem is rather the opposite – RCN prefers ministries to be observers in programme committees, mainly to give the ministries an accurate picture of what is going on and to avoid ‘creation of myths’. In that light HOD and NHD are perhaps too distant as they generally refuse to take even observer roles.

In a couple of cases relations between RCN and ministries used to be a bit frosty, but have improved significantly. Most notably, FKD are today just as happy with RCN as are the other ministries analysed. In 2001 FKD had considered pulling out of RCN. The change results in part from changed ways of working together, in part from exchange of personnel. Similarly, but on a smaller scale, RCN has considerably improved its relation with KD sector research on education and research, which meant that KD instead of channelling its resources past RCN to other arrangements decided to increase its funding via RCN. In one case the development might be going the other way; in OED case mentioned above.

No sector ministry that we were able to consult is fully happy about the new MBO system – most find it inappropriate for sector needs. Notably, this also includes KD’s own sector research. Several ministries also find the system inappropriate for the design of allocation letters. The responses have been mixed – some have tried to adapt, while others have been more ignorant. NHD has been the most pragmatic, by overlaying the new system on its own (more useful) system.

The key challenges for sector-level steering identified in the 2001 evaluation have all been met, see Table 11. Overall the ministry steering of RCN has clearly improved in the intervening period.

Table 11: Status in 2012 of key challenges in 2001

Challenge in 2001	Current status
Ministries were too prone to ‘micro-manage’ RCN	Improvement, although this tendency was more obvious in the small ministries, which this time have not been investigated on this aspect
Ministries found RCN inflexible and largely unable to create cross-cutting initiatives	Significant improvement; RCN is portrayed both as flexible and generally able to create cross-cutting initiatives
Few ministries distinguished between short-term and long-term research needs	Improvement, although also this tendency was more obvious in the small ministries, which are not investigated
Formal structures for research and innovation issues were underdeveloped in most ministries	Improvement; several ministries had reorganised internally and created more distinct entities for research and innovation. All ministries also appeared to have relatively clear research strategies. Overall, the focus on research as a policy tool has become clearly stronger since 2001.

Key issues identified in the earlier evaluation relating to RCN’s lack of strategic budget and room to manoeuvre and difficulties in constructing an overall national strategy remain to be tackled.

### 8.3 RCN as a national advisor on research policy

This question has many more aspects than are covered in the interaction between the ministries and RCN and are discussed in other reports of this evaluation. Here we comment simply upon what emerged from our study of the steering process.

Most ministries say that they would like RCN to have a more articulated voice in the national debate on overall research priorities<sup>30</sup>. NHD, OED and HOD would like RCN to offer more advice in terms of which thematic priorities to make, between which research fields allocations should be moved, and so on. KD asks for more participation by RCN in public arenas and policy discussions, and would like RCN to take a clearer stand on contentious issues. Moreover, NHD would like to see RCN conduct macroeconomic analyses linked to the Government's main documents, plans and practices as a basis for priorities and strategies. The question is whether RCN – given its legitimacy towards public research performing organisations, its role as a mediator between ministries and its status as public agency – is able to, and should, develop in that direction. This latter aspect was also recognised by several ministries as a possible hindrance.

To some degree, it yet seems that RCN has established a stronger position as a coordinator between sectors than before. One piece of evidence for this is that the number of ministries participating together in 'horizontal' RCN programmes is increasing.

RCN may host the secretariats connected to various national strategies, but itself plays a varies role in articulating these, which are essentially ministry initiatives. Some of the 21-initiatives have largely by-passed RCN, most notably OED-initiated OG21 and to some extent also Energy 21, although RCN hosts the secretariats. Indeed, it is not obvious that RCN **should** play a major role in articulating its principals' strategies – except in so far as this creates shared strategic intelligence and probably the ability for RCN more effectively to implement.

RCN may have more to contribute in helping ministries develop cross-ministry national strategies, which require broader understanding of different sectors and their research challenges and where a 'moderator' or coordinator can add value by mediating between ministries with overlapping but different interests.

### 8.4 Ministry steering of RCN seen in principal-agent terms

It is clear from our interviews that the principal-agent relationships between the ministries and RCN are now being operated in an atmosphere of greater trust. In part, this reflects the passage of time: those who lived through RCN merger and who resented the loss of direct ministry authority over the way its research budget was spent have largely retired or been promoted to greater things. In part, it reflects mobility among people working in the ministries, RCN and indeed other organisations such as NIFU and Innovation Norway. In several cases, people we interviewed on one side of the table had also sat on the other. Crucially, everyone appears to talk frequently to everyone else, reinforcing the creation of a shared set of values and agendas that reduces the incentives for moral hazard or adverse selection.

Many ministries complained that RCN's budget proposals were over-ambitious; simply put, they wanted RCN to ask for less money than it does. Nonetheless, the commonality of interest between RCN 'customer account managers' or DADs and their ministry principals makes it easy to agree on doing the things the ministries want. It is in the DADs' interest to have the ministries maximise their spend through RCN. Since this is the level at which the money changes hands, this is also the level at which the foundations of RCN's strategy are built. This is the reason why RCN's 'national' suggestions for the

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<sup>30</sup> This finding is echoed in RCN's own set of interviews with representatives of the steering ministries and other key actors in RCN, *Kunnskapsbaserte råd, virkemidler og møteplasser, Policy for Forskningsrådets arbeid med kunnskapsgrunnet – med fokus på det tverrgående kunnskapsgrunnet*, Oslo: RCN, 2011

White Papers tends to be lengthy and detailed: they build in large part on sectoral interests.

The strongly sector-based nature of the principal-agent negotiations with RCN, coupled with continuing worries among ministries about the need to protect ‘their’ money from being mis-spent on achieving other ministries’ objectives serves to underline the tendency for multi-principal relationships to lock the agent in. The old pattern of (especially) ministries that spend modest amounts on research through RCN allowing RCN the least freedom in how it uses that money seems to persist.

Successively earmarking the Research Fund has brought RCN and KD back to the situation a decade ago, with limited room to change direction or take new initiatives without persuading multiple ministries of the need to do so. If the new budget can become a ‘rotating’ source of strategic funding, it would be possible to make a series of systemic interventions as needs change over time. Especially in relation to KD and NHD money, RCN has considerable freedom of action; but it could now be more of a struggle to take radical initiatives like the Centres of Excellence programmes than was the case in the early 2000s. That depends essentially on the degree to which the new budget line in KD that replaces the Fund becomes entrapped in ‘budget business as usual’.

At the level of the steering relationships discussed here, we saw no evidence that the beneficiaries were obtaining undue amounts of influence on decisions. Nonetheless, as we show in other parts of the evaluation, their cooperation and participation in programming and proposal selection remains vital to the effective existence of RCN.

## 8.5 Outstanding issues

Our interviews here and in other parts of the evaluation raised two issues that appear unresolved in the implementation of the sector principle in Norwegian research governance

- A ‘narrow versus ‘wide sector principle
- Funding and responsibility for basic research

Our discussions with both RCN and the ministries made it clear that despite the useful discussion<sup>31</sup> in 2004, there is not a uniform understanding of the ‘sector principle’ in research. The general idea that each ministry should take responsibility for research in its sector is almost universally agreed in Norway. That is a view that we share. Indeed, while the Norwegian principle is perhaps more explicit than that abroad, most countries organise their research funding and governance around this idea. The alternative of centralising responsibility for research in a science ministry or something similar is unusual. While there is no clear proof, the argument that it is better to have 16 ministries supporting the idea of research than to have one fighting the other 15 to maximise the national research budget is attractive.

We can think in terms of two kinds of sector principle for research. One is a ‘narrow principle that each ministry should pay for and secure or procure the knowledge it needs to run its daily business – of regulating and making policy. The other is a ‘large’ principle that gives each ministry in addition the responsibility to make sure Norway has research capacity (in terms of a lively community of applied and pure researchers) working in and for its sector. Without this, there is no guarantee that the small sector principle can be followed in future. Ministries varied in the extent to which they see the large principle as applying to them. Clarifying this would improve the steering of RCN and reduce ambiguity in negotiating ministries’ research budgets.

In general, other ministries tended to feel that KD’s responsibility for basic research implied that they themselves did not need to play a role in funding the growth of

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<sup>31</sup> *Departementenes sektorsansvar for forskning, Sluttrapport fra et arbeid utført av Utdannings- og Forskningsdepartementet, Oslo: UFD, 2004*

fundamental knowledge or research communities. The role of the state in governing the research and innovation system must involve providing both 'bottom up' basic research that is not thematically targeted and basic research relevant to national needs – in other words, both Bohr's and Pasteur's Quadrants in Stokes' terminology<sup>32</sup>. Clearly, the ministries combined must spend enough on basic research to meet national needs – irrespective of whose budget is involved. We return to this question elsewhere in the evaluation.

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<sup>32</sup> Donald E Stokes, *Pasteur's Quadrant – Basic Science and Technological Innovation*, Washington DC: Brookings Institution, 1997

## Appendix A Example of Interview checklist

The interview checklists were all based on a common format and all resembled each other, although the content varied between ministries depending on their respective strategies and responsibilities. The checklist below was used for the interview with the Ministry for Petroleum and Energy.

<p><u>Sectoral/National priorities:</u></p> <ul style="list-style-type: none"> <li>○ We identified increased investments in petroleum 2004-2006, and in other energy sources from 2006. RCN responds appropriate?</li> <li>○ Good balance between basic and applied research? RCN able to serve needs of industry?</li> <li>○ Does RCN add value to OED sector priorities? Does RCN mix OED priorities with other min priorities in a useful way?</li> </ul>	
<p><u>International issues:</u></p> <ul style="list-style-type: none"> <li>• OED seems relatively interested in internationalization?</li> <li>• RCN good at initiating collaborations with strategic countries/partners/networks?</li> <li>• RCN useful in FP/EU strategies?</li> </ul>	
<p><u>Instruments:</u></p> <ul style="list-style-type: none"> <li>• Is RCN good at mixing OED funding with other ministries? PETROMAKS etc seem quite confined to sector?</li> <li>• Have RCN channelled OED funding into appropriate programmes? Good dialogue on programme design?</li> <li>• RCN role in FMEs (strategic centres f green energy)? Appropriate?</li> <li>• Why so little OED participation in programme committees? Has OED participation in programme committees been useful? Why let oljedirektoratet represent the state in PETROMAKS?</li> <li>• RCN been good at documenting effects of its instruments? Good at doing risk-analyses? Does OED require much of that?</li> </ul>	
<p><u>RCN in national innovation system:</u></p> <ul style="list-style-type: none"> <li>• RCN hosts secretariat for Energy 21. Not for OG21. Why changed strategy? Successful change?</li> <li>• Why focusing so much on RCN? No institutes/other PRO agencies in OED sector?</li> <li>• OED prioritises close collaboration between RCN, Enova and Innovation Norway on the Energy21 strategy. How does it go?</li> <li>• RCN should collaborate with Gassnova on CLIMIT. Why? How does it go?</li> <li>• RCN good at coordinating with industry org in OED field?</li> </ul>	
<p><u>RCN as strategic partner:</u></p> <ul style="list-style-type: none"> <li>• To what extent is RCN used for dialogue on R&amp;D strategies? Does RCN provide useful input? Good/bad examples of dialogue?</li> <li>• Is RCN responsive to OED needs?</li> <li>• How does a guideline come about?</li> </ul>	
<p><u>Documentation and reports:</u></p> <ul style="list-style-type: none"> <li>• RCN responses easy to track? Are changes identifiable? Is RCN reporting clear, concise? Does RCN deliver on time?</li> </ul>	
<p><u>New system for results</u></p> <ul style="list-style-type: none"> <li>• Fit for purpose? Are indicators useful? Positive effects thus far? Possible to use the system for governing RCN activities/funding?</li> </ul>	



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