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Public participation and science  
and technology policy options:

The Norwegian national experience

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## INTRODUCTION

In the years between 1960 and 1990 important changes took place in the Norwegian society. While the 1960s was a time of optimism and belief in social and economical progress linked to benefits of modern science and technology, the following decades saw this optimism reduced substantially. A main reason for this change was the increasing focus on natural and societal bottlenecks and tensions, labelled environmental problems. One side to these problems was the identification of pollution to water and air by industry and the exploitation of the natural resources. Another was a changing conception of hazards and dangers. What earlier had been regarded acceptable, now became intolerable risks.<sup>1</sup> A third was the development of new policies to identify, control or solve these tensions.

Related to all three matters, science and expertise had a key position. But even if experts and scientists were the central actors, problem definitions and policy formulation have been reshaped, modified or reinterpreted by other actors in industry and administration. Also the civil society, has on different levels, and with a variation of success had influence.

The different "definitions" or "views", and the various "remedies" or policies proposed to control "the problems" have seemed to form changing, but phase dependant "problem-fields", the first phase being the time from the late 1950s to 1970. This constitution phase saw the emergence of various questions related to actual and conceptual natural and social tensions and the attempt to find ways or policies that could suit these problems. The second phase, the years from 1970 to 1983, was a time when the different types of views and policies were tried integrated and fixed through "institution-building", with the establishment of the Ministry of the Environment as the most important event. From 1983 to

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<sup>1</sup>Scott Lash, Bronislaw Szerszynski & Brian Wynn: *Risk, environment and modernity*, London, Sage Publications, 1996.

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1992 was a kind of in-between stage with a regrouping of organisations and institutions, the aftermath came to be a new substantial shift, often described in terms such as ecological modernisation.<sup>2</sup>

My main intention with this article is to map, describe and explain some aspects related to the constitution, integration and reconstruction of the environment problematic, in the time from 1960 to present. To delimit this rather comprehensive task, a more limited objective is to focus on the relation between what is often seen as two different lines of development: The public influence and engagement in environmental questions, and the development of a science and technology policy concerning the environment. What has been the particular Norwegian style in this relation and what has changed during the phases indicated above?

Since this article is followed by at least two closer studies of the Norwegian situation in this field, the ambition is to point out main elements that can be followed in more detail in the further studies. I will start up pointing at some general points related to Norwegian policy style and context, then lay out some features describing each phase. At last I will try to give some preliminary conclusions.

## THE GENERAL PICTURE

In 1972 and in 1994 the Norwegian Government tried to win the people's support for a membership in the *European Economic Union (EEC)*. Both times it failed. The controversies related to the possible membership and the result underlines central trends concerning the national style in policy questions. Many of these aspects also applies to the relation between public participation and the science and technology sector.

The first stage opposition to an EEC-membership was both a populist and a political radical reaction, pointing at vital characteristics of this decade. It was also, in large parts, grounded on environmental concerns. In 1994, both the supporters to, and opponents against membership, argued quite much for environmentalism and "green policy". This shows a diffusion of "green ideas" from marginal groups to the political establishment and from left to right. Presently we all are "green".

Economists have described Norway as a small open economy, quite vulnerable to international changes.<sup>3</sup> When it comes to changing international scientific discourses, technological innovations or policies concerning the environment there are obvious parallels to this openness. On the other side habits and tradition seem to have had a firm grip on the

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<sup>2</sup> Maarten A. Hajer: *The Politics of environmental discourse*, Oxford, Clarendon Press, 1995.

<sup>3</sup> Fritz Hodne og Ola Honningdal Grytten: *Norsk økonomi 1900 - 1990*, Oslo: Tano, 1992.

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society, thus preventing or restricting the import and integration of new ideas or policies. This situation underlines the fact that some policies have been adopted and changed faster than others. While the establishment of scientific and administrative institutions to cope with the environmental problems occurred at nearly the same time in Norway as in other European countries, the set up of more specific technological oriented policies to handle the more concrete problems, what has been termed "end-of-pipe technologies" and later "green industry initiatives" had a much slower coming.

In organising terms the Norwegian post-war society has been categorised a pluralistic corporate society. More presently there is claims that we have moved from a corporate to a higher grade of direct intervention and lobbyism.<sup>4</sup> One consequence of this change has been a shift in strategy on behalf of some environmental actors from acting in a corporate, to more directly intervening decision-makers and interest coalitions. There have also been a shift from a rather overall environmentalist approach, to more niche-oriented attempts of influence.

The post-war Norwegian society have been heavily committed to state interference and long term planning.<sup>5</sup> In the last decades, however, the regulations have been substantially reduced. In spite of this fact, Norway contrary to many other European societies, is a highly regulated society with a broad array of sectors under rather strict state control. This fact points at planning as an important arena for implementing policies, but also, and may be to a larger extent a hindrance, conserving existing policies. In the last years, groups wanting to influence decision-makers have moved their interest away from planning and tried to approach heavy actors through the market.

Another vital trend has been the steadily transfer of power from central to local administration. The Government and the ministries seem both unable and unwilling to carry out decision-making on lower level.<sup>6</sup> One side to this has been in line with a political consensus for local rule, the other a consequence of the increased complexity of modern society. The central administration has given up to control what they can not control anyway. Even if this was for many years a wanted situation for environmental groups, they have not had the ability to grasp this opportunity to their favour since science and technology policies are formed centrally, but acted out on local level.

A key factor to understand the Norwegian style of policy-making is

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<sup>4</sup> Hilmar Rommetvedt and Ståle Opedal: *Miljølobbyisme og næringskorporativisme*, LOS-senter-notat 9522.

<sup>5</sup> Nordby, Trond (red.): *Arbeiderpartiet og planstyret 1945 - 1965*, Oslo: Universitetsforlaget, 1993.

<sup>6</sup> Jon Naustdalslid og Sissel Hovik (red.): *Lokalt miljøvern*, Otta: Tano/Norsk institutt for by- og regionforskning, 1994: 13

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the relatively high level of social and economical equality. This point at the fact that the borders between different groups, institutions and policy cultures have been rather open for penetration and diffusion. New ideas have been rather easily assimilated by political parties, especially by left wing and smaller ones. This may explain e.g. why there have been no green party of importance in Norway.<sup>7</sup>

Even if the equality have been diminishing in the last two decades, it directs the attention towards the role of social movements, voluntary organisations, and not at least the environmental groups influence on the science and technology policy. The voluntary organisation sector is the outcome of a long historical tradition of democratic activity.

Both individual rights and local self-government are formally and mentally embedded in the Norwegian tradition of rule. The tradition of widespread membership in voluntary organisations also contains interesting aspect related to e.g. social learning: The women movement, the lay movements, the language movements and not at least the labour movement have emphasised the importance of information and education.

In addition to the democratic structure of these organisations, with individual membership, dependence on local branches and having members from all levels of society have been vital elements marking the sector. The role of these groups, not only as political actors, but also as potential knowledge-producers have not been closely examined, but should not be underestimated. From the 1980s this situation seem to have changed. The weight on internal democracy and local dependency seem to have been swapped for the benefit of efficiency and influence on central actors.<sup>8</sup> In addition the use of expertise has been systematised and used both to produce counter-arguments, but also to signal a stronger position in relation to other decision-makers. This may have left out important sides to public participation, both the democratic side and the learning effect side.

The Norwegian research system has traditionally been sectorised and not too strongly directed. The system can be described as divided in three levels. Until lately there has been no science ministry or central co-ordinating organ for the development and implementation of science and technology at the top level. Furthermore there has been no central institution for technology assessment. On the strategic level there have been five research councils, *The Royal Norwegian Council for Scientific and Industrial Research (NTNF)*, *The Norwegian Research Council for Science and Humanities (NAVF)* and *The Norwegian Council for Agricultural Research (NLVF)* the most important in this connection. Even if the

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<sup>7</sup> Ørnulf Seippel og William M. Lafferty: "Religion, menneske eller økologi. Om natursyn og miljøpolitisk engasjement" i *Norsk Statsvitenskapelig Tidsskrift* nr. 2 1996: 115-116.

<sup>8</sup> Per Selle og Kristin Strømsnes: *Environment, Organization, Democracy: The Case of Norway*, Draft for the ISTR 2nd International Conference, Mexico City, 1996: 4-5.

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different ministries have directed their research money through "their own councils", there have been a political consensus that the councils themselves shall lay the scheme for the actual research tasks to be carried out. The research institutes have had a kind of independence at the research sector bottom level.

This "independent sectoring" of research have had its positive and negative effects. On the positive side the distance between actual research needs and researchers have been rather small. On the negative side cross-sectoral challenges such as environmental problems have been difficult to attack. In addition to the "value-comparing problem" the sectorized nature of the environmental field is pointed at as one of the main administrative problems today. Presently there seem to be, at least symbolically, a growing will at the top to induce stronger steering. In the last decade all councils have been merged into one, indicating both the need for a more effective administration and the wish to counter the more comprehensive and cross-disciplinary challenges, such as ecological modernisation. Another signal is that the ministry responsible for research has at last taken the proper name, The Ministry of education and science.

## **THE FORMATION OF A NEW PROBLEM-FIELD**

The time from 1960 to 1970 has been named "The Golden Years". The background for the label was a sound and improving economy both for the state and the general public. Not only the wealthy, but even workers could afford to buy luxury items such as television sets, private cars and cabins in the countryside. Another name put on these years was "Modern Norway", pointing at the rapid transformation of society, industry and trade. A simplified picture shows a policy along two lines:

First, heavy investment in big industry based on extensive use of cheap energy from hydro-power plants. Secondly a growing optimism on behalf of the potential outcome of scientific and technological development. While the big industry paradigm had as its spokesmen among the economical expertise in the central administration, the science and technology line was shaped and pushed forward by enthusiastic engineers gradually forming an alliance with modernist entrepreneurs in the same administration. The policy outcome of the first line was *The Plan for Northern Norway (NNP)*, initiated in 1950. *NNP* was meant to be a tool for the modernisation of traditional trades and bring new industry to what was seen as the backward areas of northern Norway. In 1960 *NNP* was reformulated as a program for less "developed" regions all over Norway. The effects of programs like *NNP* were migration and urbanisation, living and trade for many people was dramatically altered. The second policy line

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was tried implemented by the establishment of *The Norwegian Council for Science and Technology (NTNF)* in 1946. *NTNF* main objective was to fund and supervise the technical-industrial research in Norway. This line resulted in the building up of a comprehensive research institute sector, mainly financed by public money, directed by *NTNF*. Until the early 1960s the funding were in great parts directed towards research projects related to the military and industry. Gradually *NTNF* also came to initiate and fund applied social research, and from the 1970s until the early 1980s it was the main instrument for environmental research.<sup>9</sup>

In spite of the economic well being and the S&T optimism, the 1960s saw the contours of new thoughts concerning the relation between societal and economical development and the situation of the natural and social environment. A diffuse tension was triggered by several contingent factors: First an growing awareness concerning the damages of the nature. Secondly an growing focus on the transformations of traditional trades and community structures. Thirdly there administrative efforts to monitor and regulate natural and societal bottlenecks created by the modernisation process. In addition to these scientific and administrative efforts, a growing number of marginal social groups joined forces with concerned scientists and intellectuals and challenged the existing growth policy.

### **Problem "identification"**

As early as in the 1950s farmers in Årdal and on Sunndalsøra made complaints because the smoke from the aluminium plants destroyed the vegetation. Some of them were also financially compensated for the damages. In addition to this and similar public worries, the international scientific community pointed out the potential dangers and treats caused by the industrialisation and rationalisation process. Rachel Carson's *Silent Spring* came in 1962. Barry Commoner's *Science and Survival* was published in 1966 and Theodore Roszak wrote about *The Making of a Counter Culture, Reflection on the Technocratic Society and Its Youthful Opposition*. Georg Borgströms books, *Mat for milliarder*, *Revolusjonen i verdens fiskerier* and *Grenser for vår eksistens* were also meet with great interest in Norway. These and similar publications inspired Norwegian researchers and intellectuals and *The Biocidecommittee* was initiated by *The Norwegian Association for Zoology* in 1964. Professor Ragnhild Sundby wrote about the "Global poisoning" in the periodical *Naturen* in 1965 and the biologists Eilif Dahl and Olav Gjærevoll tried to inform the general

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<sup>9</sup> Kvaal, Stig: "Drømmen om det moderne Norge - Automasjon som visjon og virkelighet i etterkrigstiden", Trondheim: *STS-rapport* nr. 13, 1991; Furre, Berge: *Vårt hundreår. Norsk Historie 1905 - 1990*, Oslo: Det Norske Samlaget, 1993.

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public about the new dangers produced by the modern industrial society.<sup>10</sup>

In addition to the criticism from researchers from the natural sciences, social scientists and humanists pointed out the tensions caused by the modernisation process on society. In 1966 the sociologist Ottar Brox published *What happens in northern Norway*. The book was an attack on the modernisation policy such as *The Plan for Northern Norway*. Brox's criticism came along two lines: One emotional and value-based, according to Brox the *NNP* policy eroded the traditional ways of living in local communities. The second line was linked to the economical rationality of the policy. Was it sure, he asked, that the modernisation policy would benefit economical growth? Would it in the long run be more economical to keep small units that could combine different types of trades and exploit the natural resources?<sup>11</sup> I.e. a criticism on the policy's own terms. Brox and similar populist criticism, primarily along the first line, was adopted by others and after some years the populist "movement" became intermingled with political radicalisation, the discussions on local democracy and the new concern for the natural environment. The integration of all these elements, forming a new sector, is exemplified by Hartvig Sætras book *The eco-political socialism* from 1973. Sætra tried to show the connection between the political system, the destruction of nature and possible solutions for changing this development. The key factor came to be "local community", synonymous with "the good life".<sup>12</sup>

A second "anti-program" was initiated by Arne Næss, Sigmund Kvaløy and interested intellectuals and students at the *Department for Philosophy at the University of Oslo*. From 1969 they had sessions of debate, leading up to the establishment of *Collaborating Groups for protection for nature and environment(snm)*. The philosophy of Arne Næss was a quite important part of the debates and *snm*. In 1976 Næss stated the principles of what he called "the movement of deep ecology". Næss pointed at the pollution problem, the unequal distribution of resources, the need to stabilise the population growth, the demand for more self-government, local administration, decentralisation, so on.<sup>13</sup> Other elements were more radical, such as his "classlessness" of the biosphere. Næss with references to Spinoza, suggested a delegation of the natural rights from humans to all life. According to Næss all elements of the biosphere had equal rights. Instead of a survival of the fittest, there should be a partnership of species, he claimed. Another peculiar principle

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<sup>10</sup> Yngvar Ustvedt: *Overflod og oppgjør - Det skjedde i Norge Bind 3 1961 - 72*, Oslo: Gyldendal 1981: 431.; Bredo Berntsen: *Grønne linjer - Natur og Miljøvernets historie i Norge*, Oslo: Grøndahl Dreyer, 1994: 131.

<sup>11</sup> Brox, Ottar: *Hva skjer i Nord-Norge*, Oslo: Pax, 1966.

<sup>12</sup> Edvard Bull: *Norgeshistorien etter 1945*, Oslo: Cappelen, 1982, 1990: 453-454.

<sup>13</sup> Arne Næss: *Økologi, samfunn og livsstil*, Oslo: Universitetsforlaget, 1976: 16-19.



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was "Docta ignorantia" - the conscious ignorance". Næss also made a distinction between deep ecology and "shallow" ecology. The latter would according to Næss end up in technical reforms. Pollution would be solved by technical solutions instead of attacking the causes of the problem. According to Næss deep ecology should stick to alternative technologies (soft and close technologies), technologies made up in harmony with nature.<sup>14</sup>

### Policy shaping

The attack on centralisation and the emergence of new problems coincided with the growing administrative belief in science and technology as means to map, explain or propose technical solutions to societal problems caused by the modernisation process. The heavy post-war investment in industry and the centralisation created societal bottlenecks that could not be ignored by the authorities in the long run. There were taken different policy measures to meet these problems.

One step was the establishment research institutes or councils. Under strong protests from industry, a committee for smoke pollution had been appointed by Parliament in 1957 and *The Air Pollution Council for Concessions to Industry* was established in 1961. The power and impact of this council came to be very limited. The ability to both supervise and regulate industrial pollution proved unsatisfactory. One key problem was that the laws for these types of problems were not fit for the new situation. Another was the lack of expertise to handle these matters. The lack of expertise was tried solved by the establishment of *The Institute for Air Research (NILU)* in 1969.<sup>15</sup> While the institutionalisation of research related to air pollution had a slow coming, *The Norwegian Institute for Water Research (NIVA)* was started as early as in 1958. The third field emerged when the local and central administration had to counter existing and anticipated communication-problems. A committee for town and city research appointed in 1963 was reorganised as *The Institute for Town and Regional Research (NIBR)* in 1967.<sup>16</sup>

In addition to the build-up of scientific/administrative resources, also other administrative policy measures were tried out. Several governmental commissions were appointed, with *Modalsliutvalget* and *The Commission of Resources* as the most important. *Modalsliutvalget's*

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<sup>14</sup> Thomas Dahl: *Ordering Nature - Environmentalism as a Cultural Phenomenon*, Doctoral Thesis at Roskilde University Centre, 1994: 106.; Arne Næss: *Økologi og filosofi*, Oslo: Universitetsforlaget, 1972. Næss 1976: 16-19.

<sup>15</sup> Ustvedt 1981: 441 - 443.

<sup>16</sup> Håkon With Andersen og Knut H. Sørensen: *Frankensteins dilemma*, 1992: 52 - 54; Berntsen 1977: 132-135; Norsk institutt for by og regionforskning. Årsberetning for 1967: 83.

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mandate was to evaluate the distribution of responsibility between the different ministries. Initially this was an attempt to rationalise the administrative apparatus, in line with the administrations worry for the lack of efficiency. The commissions work came to influence the integration of environmental concern into the administration in a substantial way, consequently leading to the establishment of *The Ministry of the Environment (MD)*. Such governmental commissions became one way for the general public, to have their voices heard in relation to the shaping of administrative and S&T policies.

A third way dealing with environmental problems and setting up policy measures were the passing of acts. New acts were passed in 1954, 1965 and in 1970. In 1960 a commission for the laws for clean water was appointed and in 1970 the law for the protection of water was passed. Possibly most important was the *Planning and Building Act* treated in Parliament in 1965. This act, in line with the work of the *Commission of Resources*, stated the distribution of the responsibility for the use of natural resources and areas to the various administrative and political institutions and levels.

In many ways the act was a signal of changing attitudes and policies in a regime heavily dependant on economical expertise and macro-oriented planning. The new law was a move from a predominant economical planning policy to a planning system where also architects and social scientists were enrolled as experts by the administration. It was also a signal of the increased regulatory problems in a society dependant on large and complex technological systems. It may also be seen as the first of several steps to move both decisions and responsibility for the new problems from the central administration to the local communities.

## 1970 - 1980 INSTITUTION-BUILDING

While the first phase was marked by the confusion of things, the second phase saw the field being politicised, institutionalised and further integrated. A sector for environmental science and technology policy was gradually formed. Four "events" underlines these points: In 1970 demonstrators tried to stop the construction of a hydropower dam in Mardøla. Even if they were removed and the dam built, the action definitively placed the environment as a central theme on the public and political agenda. While the 1960s was the time for establishment of environmental organisations, the 1970s saw them on the public arena. The three most important organisations of this phase were *The collaborating groups for protection for natur and environment (snm)*, *The Norwegian nature protection union (NNV)* and *The future in our own hands (FIVH)*. In

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addition to their centrality, they represented quite different ideologies and strategies.

Two years later, *The Ministry of Environment (MD)* was established. This establishment can be related to different administrative problems: First the difficulties to handle and co-ordinate the various administrative tasks related to the environment in a satisfactory way. Secondly, put a little on the edge, the desire on behalf of some actor-groups, to set up an administrative apparatus that could challenge the superiority of the *Ministry of Finance (MF)*, thus changing the direction of social and economic development.<sup>17</sup>

In 1970 *The Norwegian Council for Science and Technology (NTNF)* appointed a committee that should initiate and finance research projects to detect, supervise and develop means to halt pollution. Even if *The Norwegian Research Council for Science and Humanities (NAVF)* and *The Norwegian Council for Agricultural Research (NLVF)* had small programs running, NIVA, NILU and NIBR were doing research, the appointment of *The Committee of Pollution (KF)* was the first serious attempt to set speed to the S&T initiatives in this sector. Even if this set up was initiated by the science system itself, it must be regarded a part of the new general policy showing the diffusion of ideas between the various domains.

In 1971 a comprehensive plan for the development of the Norwegian highway system, *Norwegian Plan for Highways No. 1 (NVP1)* was passed in Parliament. The plan was accepted as such, but the proposal gave rise to serious criticism. Several of the members of Parliament criticised the plan for being technocratic. They also called for "counter-expertise" to meet the ministerial expertise. This incident points at the central role of scientific expertise in societal planning, it also showed the build-up of environmentally related topics in other research sectors than the natural sciences. It also underlined a growing problem related to expertise's` roles, and the relativisation of science.

### **The first wave of environmentalism**

Started in 1914, the "old" organisation *The Norwegian nature protection union (NNV)* from the very start sought to preserve natural areas containing special Norwegian features. Even if the nationalism disappeared, the preservation ideology was strong until the middle of the 1960s. Then *NNV* together with *The Tourist Association, Norwegian Association of Hunters and Fishers* and a youth organisation called *4H*, launched a new campaign.

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<sup>17</sup> Kristin Asdal: *Knappe ressurser? Finansdepartementet og økonomenes rolle i 1970- og de tidlige 1980-årenes miljøpolitikk*, Hovedoppgave i historie, avdeling for historie UiO, 1994.

What initially had been a fight for natural parks now became a general struggle to secure all nature. "Use your consciousness to secure nature" became the organisations new slogan. The slogan indicates the strong relation between knowledge and education and environmentalism. While NNV had 5000 members in 1965, the number rose to 20 000 in 1973. At that time 18 local groups were scattered all over the country.<sup>18</sup>

Established in 1969, *snm* was a "young" organisations. *snm* took up questions related to the intensive investment in hydro-power plants and the problems caused by mass-motorization. At *Mardøla* plans were made for exploiting Europe's highest waterfall. A national and natural monument, it stood up as the perfect place to awake the public and the politicians. *snm* first opposed the plan with "soft" methods by publishing articles and lobbying in Parliament. When Parliament decided to go on with the project *snm* organised a camp near the waterfall. Some week later the demonstrators, chained together, were cut loose and removed by the police. Television and newspapers covered the incident in minute detail and this event became a turning point and a symbol of environmental concerns now being a political problem. Afterwards *snm* spread to other universities and efforts were made to gather all environmental interest and reshape *snm* as an umbrella organisation. In 1974 there were 13 local branches all over Norway. Marxists gradually became a strong group trying to transform it into a mass-movement organisation. A growing internal antagonism ended in 1976 when the cross-political strategy won with very small margins. However the damage caused by this struggle never healed, and this was more or less the end of *snm*.<sup>19</sup>

The third and youngest organisation was *The Future in our own hands* (*FIVH*). In the early 1970s, the initiator Erik Damman had spent one year on a Pacific Ocean iceland, living the "simple" life. In 1972 he published the book *The future in our own hands*.<sup>20</sup> where he tried to persuade people to return to a simpler, but better way of living. A central element in his philosophy was the reduction of consumption. The public debate and interest aroused by the book led to the establishment of an organisation with the same name in 1974.

Even if *snm*, *NNV* and *FIVH* promoted many of the same ideas, it is possible to make some more general distinction related to modes of participation and their science and technology view: All three proclaimed the need for structural changes. But while *NNV* and *snm* claimed that these changes had to be invoked through political decisions, *FIVH*'s meant the changes had to be an outcome of individual's efforts. Their views on

<sup>18</sup> Berntsen 1977: 87 og 126-129.

<sup>19</sup> Dahl 1994: 106110.

<sup>20</sup> Erik Damman: *Fremtiden i våre hender: Om hva vi alle kan gjøre for å styre utviklingen mot en bedre verden* (Forord av Arne Næss), Oslo: Gyldendal, 1972.

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participation were also different. *NNV* strategy was responsibility and participation, thus influencing policy-makers directly. *snm* and *FIVH*, on the other side, stood up as a counterforce to the authorities. The result of these different strategies where, to put it on the edge, that *NNV* became both a participator and an hostage, gaining a limited, but somewhat noticeable influence. The counter-establishment strategy of *FIVH* and *snm* made them visible in the public debate and somewhat setting the agenda. Both strategies came, in different ways to initiate protests and action, and thus opening the stage for changes.

Both *snm* and *NNV* stated the need for "a better knowing" of nature. This "knowing" points at *snm* and *NNV*'s close connection to academia and to science. When it comes to *FIVH*, the picture is more blurry. Their view and focus was more "lay knowledge" and "common sense", than expertise. When it came to technology, both *NNV* and *snm* addressed technology in their writings. *NNV*, in the same way as *snm*, promoted the view that new and better technology would benefit the environment. But whereas *snm* argued for ecological sound solutions (what they called soft technologies), *NNV*'s argued for better technology (what we may call end-of-pipe technologies). Concerning this question *FIVH* seemed to have had an anti-technological, or may be more correct, a technological view. They were simply not interested.<sup>21</sup>

A last point that connects both our lines was that while *NNV* was an organisation that wanted "Growth with protection", *snm* and *FIVH* promoted a "Limits to growth" perspective. In the same way as earlier, this linked *NNV* to the administration and the existing policy, while *snm* and *FIVH* were more related to the international ecological debate.

### **Administrative measures in the 1970s**

When *The Ministry for the Environment (MD)* was established in 1972 it was a result of several factors: The preservationist ideas as articulated by *NNV*, the need to secure areas for recreation, brought forward by both idealist industrialist and the labour movement, the early ecological views as presented by *snm*, the international achievements in this sector and the need of a more rational administration on resource questions. On the other side the establishment reflected the administration's own needs to deal with the tensions caused by the modernisation process and come up with science and technology measures. In the grey-zone between these lines we may find important actors working along all these lines. Olav Gjærevoll, the first cabinet minister held such a role. He was a scientist, a much as a

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<sup>21</sup> Different source: Most important Dahl

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much used member of governmental commissions and a workers party politician. He also illustrates the important fact, that the development and integration of both public participation and science and technology policy options were knit and developed at the individual level.

The establishment of *MD* in 1972 was controversial. From the initial idea in 1968 to the establishment *The Ministry of Industry* and *The Treasury* fought hard to undermine the threatening idea of what could be a resource's over-ministry. In addition the "energy-socialists" in *DNA* and in the administration tried to avoid the establishment of a ministry that would restrict the dominant technology policy, the energy-industry line.<sup>22</sup>

Until 1965 the regulation of environmental matters had been directed by the *Ministry of Church and Education (KUD)*. In 1965 a separate branch for the preservation of nature had been organised in the *Ministry of the Municipal (KD)*. One of the main conclusions of *Modalsliutvalget* had been to remove the responsibilities for environmental matter from *KD* forming a separate ministry for environmental matters.<sup>23</sup> In addition to this proposal *The Commission of Resources*, appointed in 1968 proposed a kind of *Treasury of Resources*. This was by all means a serious proposal, challenging the main ideology and the basic values and policies of the administration and Parliament. Not unexpectedly the idea of an over-ministry" was heavily opposed by the *Treasury (FD)* that wanted no strong ministry by its side.<sup>24</sup> In addition to this attempt to swap leading social values, it is interesting that environmental questions were treated as a resource "problem" pointing at the predominant economical values of the administration. In 1971 *The Commission of Resources* finished its work and came up with a divided proposal for a possible establishment of a ministry for the environment. While the majority of the commission wanted an over-department that could overrule the other ministries, the minority proposed a ministry that should coordinate all public efforts to regulate, supervise and secure the environment.<sup>25</sup> At the same time there was a shift of government. A block of liberal parties that had held the power from 1969 to 1971 was replaced by *The Workers Party*. Since the *DNA*-government disagreed with the majority block proposal they set up a new commission, *The Himle-commission*. This commission moved the discussion from the political to the ministerial arena and thus closed off the debate. Not unexpectedly it

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<sup>22</sup> Bred Berntsen: *Grønne linjer - Natur og miljøvernets historie i Norge*, Oslo: Grøndahl Dreyer/Norges Naturvernforbund, 1994: 153.

<sup>23</sup> Jansen 1989: 131.

<sup>24</sup> Kristin Asdal: *Knappe ressurser? Finansdepartementets og økonomenes rolle i 1970- og de tidlige 1980-årenes miljøpolitikk*, Hovedoppgave i historie, UiO 1994: 35-37.

<sup>25</sup> Ustvedt 1981: 449-450.

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came up with a proposal for a co-ordinating, not a ruling ministry.<sup>26</sup> This conflict between different policies, is comprehensive and important, and came to stand as one of the main controversies during the time until present. During the 1970s the various science and technology initiatives came to balance in this difficult nowhere land.

The new ministry came to be dominated by civil servants from other departments, especially from the *Ministry of the Municipality (KD)*. As an example the division of planning was in great parts organised by moving the division of development of the rural areas to *MD*. In many ways this also illustrates an attempt on behalf of the established technical-economical and technocratic planning tradition of the 1960s to be reshaped for "modern times".

The intensive use of civil servants and legal practitioners from the established ministries caused criticism. University scientists signed a petition, where they pointed at three main problems: First the extensive use of economist and lawyers, what was called persons without biological and social science knowledge. Secondly the narrow scope of these persons views on environmental questions. Thirdly the need for technical expertise to evaluate and to communicate with industry.<sup>27</sup> In addition to criticism from "external" actor groups", *MD* from the very start was engaged in disputes with the other more hard-core ministries such as *Ministry of Industry (MI)* and *The Treasury*. Criticism was not at least directed against the division for nature and the outdoor life because it tried to establish links to environmental organisations.<sup>28</sup> The various types of criticism indicates the most obvious problems of *MD* in this phase: to integrate environmental consideration into the overall policy making process. The lack of credibility in relation to other actors in the same domain. The lack of expertise to establish science and technology policy measures.

### **Environmental science and technology in the 1970s**

*NILU*, *NIVA* and *NIBR* were as I have indicated good examples of the early attempts to institutionalise environmental science and technology policy. These institutes were also consolidated during the 1970s. In many ways they came to act as producers of expertise for *MD* and other administrative institutions.

In 1970 NTNf appointed *The Committee of Pollution (FK)* to fund and guide environmental research projects. From 1973 *FK* was responsible for *NIVA* and *NILU*. In the years from 1970 to 1985 *FK* funded several

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<sup>26</sup> Asdal 1995; Berntsen 1994.

<sup>27</sup> Jansen 1989: 225-227.

<sup>28</sup> Ibid: 239-240.

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projects: One major project was set up to examine the causes and consequences of acid rain on the forests and inland fish resources, another to create a distant monitoring system of sea and air pollution, a third project should improve methods for detecting and removing chemical and biological pollution. Several other projects dealt with the basic problems related to the management of solid or liquid waste, the development of better technical equipment for pollution to air and water, in short the solutions in the spirit of the time, end-of-pipe-technologies.

*The Acid Rain Project* was carried out in the years between 1972 and 1980. The reason for the programme was a suspicion that acid rain was the caused of damage to the forest and an increasing death of fish in the southern parts of Norway. Since forestry was a economically more important trade than inland fishery, the focus first came on acid rain's impact on forest. While the project was initiated by *FK*, from 1973 *Ministry of Environment (MD)* was deeply involved in the project. When *MD* joined in, the focus on forest damages and air pollution came to overshadow all other types of acidifications. Since *MD*'s participated in international programs on long range transport of pollution, it needed quick responses. The ministry used their administrative muscles to delimit the focus and speed up the work for "findings". The was opposed by academian researchers that questioned the narrow scope of the project. Research should be carried out according to scientific standards and not with fast and simple results as the major aim, they claimed. *MD* on the other side, criticised the independent academian researchers for destroying an important international initiative to stop long range pollution.<sup>29</sup>

This short description shows the tension between academian scientists struggle for independence and the administrative need of quick responses. It also stresses the problematic connection between the administrations goal oriented ideals and the academians scientific and independency ideals. This limited conflicts directs our attention towards another line in the science and technology policy formation, the counter-expertise strategy.

### **Counter-expertise and the plans for highways**

In the late 1950s and early 1960s the Norwegian society experienced strong growth in the number of cars. In addition to the real growth, engineers and economists promoted a strong belief in the coming of the thoroughly motorised society. The factual situation and the proclaimed

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<sup>29</sup> Nils Roll-Hansen og Geir Hestmark: *Miljøforskning mellom vitenskap og politikk, Utredninger om forskning og høyere utdanning*, NAVFs utredningsinstitutt, Norges Allmennvitenskapelige forskningsråd, 1990: 7-12.



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visions moved the techno-economical expertise into positions where they could influence the planning of the future transport system in an substantial way. Large state initiated planning projects became new strongholds for the technocratic expertise.

*The Norwegian Plan for Highways no. 1 (NVP1)* was carried out in the years between 1964 and 1969. The mandate given the planning committee, consisting of three economists and three engineers, was to lay out a scheme for the investments in the main roads of Norway for the time from 1970 to 1990. The finished plan, published in 1969, was built mainly on technical and economical consideration. The smooth flow of traffic with as little as possible use of resources bringing the cars from one point to another was the main ideal of the committee.<sup>30</sup>

When the plan was made public, it was met by heavy criticism. The criticism can be divided into two main parts. First a demand from all parts of Norway for more resources for the roads of their own district. Secondly the disapproval from various groups arguing that the plan was centralised, sectoral, technocratic and narrowly based on technical and economical variables.

While the first criticism underlines the dominant values for social development of that time, the latter was the sign of new groups entering the arena of research. In Parliament the same arguments were stated and some of the constituents called for counter-expertise to meet the ministerial expertise. This illustrates another situation where the general public, through its representatives tried to influence the direction of science and technology policy development. While *NVP1* was being concluded, a new plan *Norwegian Plan for Highways 2 (NVP2)*, was initiated. This time planning should be carried out as a decentralised process where nearly 80 local committees should be heard. Not only engineers and economists, but also architects and social scientist were engaged in the planning activities. A last but important point was that the mandate explicitly stated that environmental questions should be considered in a serious way.<sup>31</sup> At this stage, not only representatives, but also lay people were called for participation and hearings.

The label counter-expertise is problematic and ambiguous, however useful to characterise a wide variety of ways of using knowledge, expertise and science to oppose the established expertise. At the best the 1970s counter-expertise was loose and unstable alliances between environmental organisations, individual academicians and scientists. One background for what was seen as a counter-establishment strategy was the obvious role of

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<sup>30</sup> Per Østby: *Flukten fra Detroit - Bilens integrasjon i det norske samfunnet*, Historical studies no. 11, Trondheim 1995.

<sup>31</sup> Østby 1995.

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science as a political instrument. Another was the double role of many of the environmentalist entrepreneurs. They were professionals by education and career and the organisational activity was just one more aspect of their work. These two elements were reinforced by the growing suspicion of the established research institution legitimising the existing technocratic policy.<sup>32</sup>

Since the available resources for establishing separate and independent research institutes were limited, the environmental organisations had to find alternative ways to integrate their views and expertise. One was to make own alternative reports to counter the administrative reports. Another was the work carried out by researchers inside traditional research institutions and the universities. Some institutions became from the very start sites for alternative and radical view on social planning and development. The third type of counter-expertise strategy was to get access to state planning projects. During the 1970s, radical, anti-establishment and anti-positivist researchers came to work in institution serving the state policy. This made a change in scope and direction for many research projects.

Even if the impacts of this counter-expertise attempts is difficult to measure, there are some indirect evidence. Even if the counter-expertise could not be identified being separate institutions, the impact of independent radical researchers and institutions were seen as a problem by the administration. This so-called interest-dominated" research was tried met by what was called "The Langslet-doctrine" launched in 1981 by the conservative government. According to this doctrine, funding of research should in principle, or to a greater extent, be directed by "neutral" research councils and not by ministries.

The Langslet doctrine was first of all a continuation in the belief of neutral science and positivism. Secondly it was an attempt to regulate the relation between administration and science, and thus counter the counter-expertise's impact, the radicalisation of profession and the incorporation of radical views in research.<sup>33</sup>

### **Counter-expertise and the lost case of Alta**

Another central theme of the 1970s was the energy-question. The use of nuclear energy as possible source for the future popped up in different periods. In the 1950s Norway was among the first countries to construct nuclear reactors. But the attempts to make this a new vital source of energy did not succeed. The use of water resources seemed more promising than

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<sup>32</sup> NAVF: *Alternativ framtid i andre former*, Oslo 1989: 10.

<sup>33</sup> Kjell Eide: *Vitenskapeliggjøring av politikk*, Utredningsinstituttet 1995: 50-51.

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this new technology. In the 1970s the question was raised anew, but this time the proposal was put aside after heavy protests from the general public, the environmental organisations and not at least by the incidents in Harrisburg Pennsylvania.<sup>34</sup>

Concerning the construction of hydro-power plants, the development continued in more or less the same tracks as it had started in the beginning of the century. Several plans were made to protect the remaining water-falls, but the protection of nature were mainly done to areas that had little or no public interest. Since the energy-industry alliance was represented all through the political hierarchy from bottom to the very top the possibilities for change seem limited. Two white papers, *The resource situation for Norway in a global perspective* and *Natural resources and economical development* published in the mid-1970s clearly defined the governmental perspectives with a further building up of energy intensive industry was still the main goal. The reports showed the marginal gains of environmental organisations related to the energy-industry alliance.

The uncovered policy strategy of these papers made the environmental organisations come up with their own report. The physicist Hugo Parr chaired a committee that created a counter-report that concluded with a clear request that the heavy exploitation of energy sources had to be stopped.<sup>35</sup> *Energy, environment and society* was clearly inspired by international ideas of "Limits to growth". But as a means to change the established trajectory, this type of publications seemed to be in vain. As a policy-making instrument it seemed at its best convincing its own supporters.

Consequently the 1970s culminated in the same ways as it started with a conflict related to the construction of a hydropower dam, this time in Alta, Finnmark in 1980. From the project was presented in 1971, until the major conflict in 1980, there was continued protests against the construction from various actor-groups. From 1978 the *Peoples Initiative to stop the Alta-construction (FMA)* came to co-ordinate and direct different action towards the construction plans. A central theme all through the battle was the prognosis for the "real" need of energy. The first prognosis made by the hydro-electrical companies themselves showed convincing figures for the future need of more energy in the region. Another prognosis made by *The Bureau of Statistics* reduced the figures substantially. When the prognosis was criticised, *The Ministry of Industry* meet this challenge by pointing at the low use of energy at the moment and the great need in the future. Several other reports showed the marginal

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<sup>34</sup> Berntsen 1994: 209-210.

<sup>35</sup> Ibid: 203-204.

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economic gains.<sup>36</sup> When the Alta construction was discussed in Parliament, the obvious discrepancy between the different prognosis were pointed at. But it was all too obvious that the project had to be carried on, not at least to save the political prestige of the political elite, with Gro Harlem Brundtland in the main chair. While *MI* worked hard to support the project, *MD* played a very defensive role throughout the controversy. This role may be regarded a conclusion of *MD*'s obvious problems to get a stronger grip on the development of the overall policy and to create its own policy.

As in 1970, at Mardøla, the demonstrators were removed by a massive police force. The energy-ideology of the political elite and not at least their prestige overruled science, local and national protest. The controversy put new focus on the relation between public engagement, the momentum of the existing official energy policy and the power of the state. As interesting however was the defeat of counter-expertise attempts in its first stage. Politicians overruled scientific results when not suited. This illustrates the reverse of the counter-expertise strategy, the relativisation of science. Science's objective answers to problems was exchanged with various scientific objective answers to the same problems. This weakened their strength, they could be swapped when suited.

## 1982 - 1990 RECONSTITUTION

The period from the early 1980s until present is close in time and the picture still is blurry. In this phase the modern industrial state, heavily committed to large technological system and a booming oil industry, saw the commitment to environmental precautions being both integrated, professionalised and dissolved. Integrated in the way that nearly every sector adopted the ideas of sustainability, professionalised in the way that highly trained experts became the key actor to definition and to propose, and dissolved in the way that the responsibility for environmental dangers no longer was only placed at the central administration. The label reconstitution underlines the transformation of both definitions and policies.

An important feature of the 1980s was a structural transformation of environmentalism. Even if the lost case of Alta had destroyed many activists believes, new organisations entered the arena. While the majority of the "old" and now more "responsible" activists joined political parties, public administration, research or entered their sofas, also new types of organisations came into action. One type was almost militant and carried

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<sup>36</sup> Parmann 1980: 34-35

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out actions against industrial installations. Another was international organisations setting up local branches in Norway. A third was organisations that emulated consultants firms. While *Nature and Youth (NU)* and *Bellona* were the best examples of the first type, *Greenpeace* and *World Wildlife Fund (WWF)* were the most influential of the second. What we may label *Bellona, version 2*, represents the third type.

Closely linked to these changes was the set up and transformation of a more permanent counter-expertise experiment. After extensive lobbying by environmental organisations, Parliament in 1982 granted *Alternative Future (AF)* money for research. This counter-expertise experiment later turned into a more or less established research "institute" *Research for a Sustainable Society (ProSus)* exemplifying a throughout professional field.

During this phase, various events put industry in public and political focus as the major contributor to pollution. This was one reason for industry, in a very slow fashion, to come up with preventive measures. The late development of clean industry in a Norwegian context, was stated in a white paper from 1987. It concluded that Norwegian industry, contrary to its international counterparts, had been very slow to take environmental precautions.<sup>37</sup> In spite of industrial aloofness, this phase saw a new weight put on environmental research and development as a major area for the future. When it happened, it was based on two arguments: First the need integrate sustainability into this sector, secondly to find new fields of expansion for industry. This new interest had an additional side, the stress to integrate technical and societal research. Environmental S&T research should now be multidisciplinary and the need of co-ordination of the research activities were especially underlined. This illustrates a shift from "end-of pipe" to "end of society solutions", pointing consequently at the later attempts to initiate cleaner technologies in the 1990s.

### **The second wave of environmentalism**

From 1983 *Nature and Youth (NU)*, the youth organisation of *NNV* tried to stop the outlet of eliminate waste from the company *Titania* in Jøssingfjorden. Eliminate, an important raw material for producers of paint, was extracted from solid rock and had to be enriched before it was shipped to companies in Germany. The enrichment resulted in a lot of waste that was dumped in the fjord. Many years of production had filled up the fjord and now the company planned to send the waste in pipes to the outlet of the

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<sup>37</sup> St.melding nr. 46 (1988-89) *Miljø og utvikling. Norges oppfølging av Verdenskomisjonens rapport*: 101.-102

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fjord. Local fishermen had tried to stop the dumping of waste, but in vain. In 1983 the environmentalist went to the outlet of the fjord to stop the construction of waste pipes. During this campaign, the activist got help from the Danish branch of *Greenpeace*, illustrating the emerging global scope of environmentalism. The construction was not stopped, but continued under continuous disturbance from the activists, covered by media.<sup>38</sup>

During this new national drama several actors were brought onto the stage. One was the *National Office for Pollution (SFT)* directed by MD, another was *The Institute for Fishing Research (IFR)* and the third a private consultant firm, *Miljøforsk*. The first was a supervising office, the second a public financed research institute and the third a private consultants firm. Before *SFT* moved into the arena, *Titania* had used the results of *Miljøforsk* showing that only small amounts of the waste would disperse outside the dumping site. An investigation carried out by *SFT* and *IFR* later stated that this figures were far to low. The dispute ended when the authorities forced *Titania* to store the waste on land.<sup>39</sup>

This event and the entry of new official and private research and regulatory bodies and consultants firm onto the stage underlines the coming of new constellations in the environmental field. Private firms ordered examinations, official regulatory bodies increased their interventions and official research institutions were hired to give the "correct" answers to problems. The outcome of this conflict also points at a general change of policy where industrial pollution where addressed in a more serious way by the administration in general.

The intervention of various types of expertise in this limited controversy had an additional outcome, the creation of a new strategy for environmental organisations. In 1986, during the end of the *Titania* conflict, two active members of *NU*, Frederic Hauge and Rune Haaland, left *NU* and started *Bellona*. The initiators wanted a more professional and effective organisation than *NNV* and *NU*. *Bellona* was from the very start directed by its leaders with no pretensions being democratic. *Bellona* in the beginning followed the strategy of *NU* and carried out several actions against industrial plants. But in addition it was from the very start heavily committed to scientific and technical expertise. *Bellona* also set new standards for NGOs by using the media in quite a professional way. In 1987 they started a crusade against one of the largest Norwegian corporations *Norsk Hydro*. Their "investigations" exposed the spill of large quantities of mercury to water and air. Another large corporation, *Borregaard* was approached in the same way. By extensive use of media, by gathering

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<sup>38</sup> The conflict is described in detail by Dahl 1994.

<sup>39</sup> Dahl 1994.

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their own "scientific" samples to document the pollution, these industrial corporations, the Government and *SFT* was forced to take precautions.

In the years from its establishment in 1986 to 1990 *Bellona* was financed by its members. In 1990, after serious economic trouble, the organisation was reorganised. The new partner became industry, gradually paying nearly 75 percent of their expenses. The change of financial support was also followed by an alteration of images and methods. Instead of presenting themselves as rebels, their new style was look-alike experts and consultants. They did not only change from fishermen's sweaters to Italian suits, they adopted the same ideology and language and was gradually regarded serious "partners" for discussion. They moved into the same areas as the ministries economical and technical expertise. During the controversy related to the EU-membership in 1994, *Bellona* was the only NGO arguing for a membership. They stood on the same side as industry and the government.<sup>40</sup>

### **Alternative future - the counter-expertise institutionalised**

The more "traditional" organisations such as *NNV* and *FIVH* choose another route in their attempt to be more "professional". From the early 1980s Erik Damman, the leader of *FIVH*, chaired informal discussion groups with parliamentary members. Influential scientists such as Ottar Brox, Fredrik Barth, Johan Galtung and Gudmund Hernes also joined these sessions. In the wake of this effort, 15 organisations, with *FIVH* and *NNV* as the most important, launched an intensive lobbying campaign to convince the representatives for the need of an alternative research project. The initiators were granted NOK 1.5 million from Parliament.<sup>41</sup>

The mandate for *Alternative Future (AF)* was to develop one or several knowledge-based models for alternative societies, where social, environmental and resource responsibility should be given priority to material and economic ends. Secondly, the project should examine the possibility for changing the direction of the Nordic societies towards an alternative society. Thirdly, *AF* should try out some of these models by small practical experiments.

After few years existence the scientific establishment voiced their suspicion concerning the professional competence of this project. A Nordic evaluation group appointed ended up with a proposal to incorporate the project into *The Council for Research for Social Planning (RFSP)*. The initiators of *AF* protested and was heard. This controversy

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<sup>40</sup> Christin Søgård: "Fra rebeller til konsulenter" *En sosiologisk studie av miljøstiftelsen Bellona*, Hovedoppgave i sosiologi ved UiB, 1995.

<sup>41</sup> NAVF 1989: 10-13; Runar I. Malknes: "En alternativ fortid" i *Tidsskriftet alternativ framtid* nr. 4, 1995: 20-22.

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between the initiating organisations and the national research system is interesting. Behind the research systems objections one can imagine the administrations objection. Runar I. Malkenes argues that the administration made it a principle to counteract the project.<sup>42</sup>

In spite of the initiators wish to keep *AF* outside and to be "counter", *AF* was gradually integrated into the established research system, changing its position from an independent alternative research project, to a research "institute". From the 1987 *AF* participated in the World Commissions work in Norway, later in the UN-meeting in Rio. *AF* launched several research projects related to the challenges discussed at the Rio conference. The project "Sustainable Economy" was an effort to set up alternative formulation for the economical development.<sup>43</sup> In 1995 *AF* was institutionalised as *Program for research and evaluation for a sustainable society (ProSus)*.

As we can see from this short description, project *Alternative Future* was transformed from a could be counter-expertise instrument to an integrated part of the research system, underlining the professionalisation and integration of this period. First the systematic acculturation and integration of green ideas into all domains. Secondly the gradual domestication of counter-movements by established science and administration. *Bellona* and *ProSus* illustrates in different ways how counter-movements became integrated into the established administrative/scientific system.

### **Sustainability integrated**

On the background of their international achievements, not at least the "Brundtland-administration" had to follow their own message in some way or another. Even if the commitments at first glance seemed to be more rhetorical than practical, administrative measures were taken: One example was *Environmental Protection in the Municipalities (MIK)*, an attempt to create obligatory environmental offices with professional competence in the municipal administration. Another was *The Environmental Home-guard (EHG)*, an attempt to integrate sustainability on the grassroots level. A third was the establishment of two centres for research and education for development and environmental tasks. *The Centre for Development and the Environment (SUM)* was set up at *The University in Oslo*, and *Centre for Environment and Development (SMU)* were organised at *The University in Trondheim*. Interesting enough, the majority of the initiative seem to be driven from above, with *MD* and the central

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<sup>42</sup> Ibid: 23.

<sup>43</sup> Ibid: 26-28.



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offices of the environmental organisations, the amalgamated environmental family as the driving forces.

### **The Environmental Home Guard**

An effort to integrate both "knowing and doing" on the local level was *The Environmental Home Guard (MHV)*, established in 1990. The initiative was taken by NNV and the *National Campaign for Environment and Development (FMU)*, financially supported by MD.<sup>44</sup> The major goals of *MHV* was to reduce and change the patterns of consumption. Another main aim was to provide people with information about how to make environmental more proper choices in everyday situations. A third measure was to provide the members with tools to involve in local activities for environmental protection by creating network of interested others. This points also included the learning of how to make the members influential in different types of ad-hoc movements, organisations, firms or local communities. A central concept for *MHV* was "dugnad" (voluntary communal work) which points at the traditional way to carry out local duties or activities. The name, *Home Guard*, also points at the old tradition in safeguarding the society from the attack of enemies. Even if the homeguard is an individualistic organisation, with individuals, families and small local groups as members, the central organisation points at the need to combine individual actions with more structural changes.<sup>45</sup>

According to the main philosophy of *MHV* the emphasis is placed on simple but concrete tasks. These tasks vary from the use of cloth baby diapers instead of paper diapers, chum-driving, separation of waste from the household, to the use of toxic chemicals in public work.<sup>46</sup> One example is illustrating this attempt is the municipality of Malvik near by Trondheim is picked as "a test municipality". The goal for the project is to establish twenty green families in the municipalities. To get the project going the chief officer, the chief environmentalist and the personnel manager of the municipality has volunteered. This point among many things at *MIK - Environmental protection in the municipalities (MIK)*, a centrally initiated environmental initiative for the municipalities.<sup>47</sup>

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<sup>44</sup> Dag Endal: "Citizen Mobilization for Environmental Protection and Sustainable Consumption" in William M Lafferty (compil.): *Steps towards sustainable Consumption*, Oslo: Rapport 2: 94 fra Prosjekt Alternativ Framtid, 1994: 35.

<sup>45</sup> Ibid: 35-37.

<sup>46</sup> "Grønnere livsstil i familien" og "Kommunetopper i spissen for miljøvern" i *Adresseavisen* 26.april 1996.

<sup>47</sup> Ibid.

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### Environmental protection in the municipalities

In addition to the increased global co-operation to fight environmental problems, new focus was set on local initiatives to meet environment challenges. From the late 1980s there was a gradual building up of decentralised environmental administrations. From 1987 *MIK* was set up in many local administrations.<sup>48</sup> In addition to *MIK*, what was called "environmental packages", e.g. fresh money were contributed to projects in the municipalities. The selected municipality had to prove their ability to co-ordinate different sectors and institutions, and thus invoke changes on specific targets.<sup>49</sup> This initiatives can obviously be linked to the ideas of The World Commission report and later Agenda 21. In addition it must be related to two vital Norwegian trends in the 1990s. First a general decentralisation of political regulation and steering. Secondly the increased difficulties on behalf of the central authorities to impose their power on a local level.<sup>50</sup> The global - local timing, and the distribution of risks and control underlines the late modern aspects of these changes.

*MIK* was tried out in 91 municipalities and each municipality had to engage a "chief adviser for the environment". His main tasks was to initiate, co-ordinate and supervise environmental activities in different administrative sectors in each municipality. How this should be done, and which tasks had the highest priority was left to the municipalities to decide.<sup>51</sup> This underlines the distributive elements in these initiatives. The responsibility should be delegated to the lowest possible level.

In 1990 *MIK* was evaluated by various research institutions and with ambiguous conclusions. Among the investigating institutions there were a general agreement that *MIK* had caused a change of interest and attitude concerning environmental policy making. However, these changes had not been substantial and was more on the discursive than the practical level. Some of the changes were due to the kind of knowledge of the chief environmentalist. Even more interesting was the discovery that the public opinion seem to have little influence on the decision makers in the municipalities. The last point was the lack of contact between the local administration and local industry.<sup>52</sup> Both *MIK* and *MHV* points at the obvious lack of expertise and influence, secondly the gap between policies and practise, and thirdly the distance between central decisions and local ability to carve out both new policies and concrete measures.

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<sup>48</sup> Jon Naustdalslid og Sissel Hovik (red.): *Lokalt miljøvern*, Otta: Tano/Norsk institutt for by- og regionforskning, 1994: 13.; *St.meld. nr. 34 (1990 - 91) Om miljøvern i kommunene*

<sup>49</sup> *St.meld. nr. 34 (1990 - 91) Om miljøvern i kommunene*: 12.

<sup>50</sup> *Ibid*: 19-21.

<sup>51</sup> *St.meld. nr. 34 (1990 - 91) Om miljøvern i kommunene*: 12 - 14.

<sup>52</sup> *Ibid*: 38-45.

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### **The Pollution committee revisited**

In 1979 *The Royal Norwegian Council for Scientific and Industrial Research (NTNF)* made a more comprehensive analysis of the "the field": Attention was drawn to the lack of co-operation between various domains. In addition the analysis stressed that while the first generation efforts had been to clean up pollution, the second should be focused on preventing further pollution. A white paper also stated the obvious need to include other types of scientific expertise such as sociology, psychology and medicine into research and development.<sup>53</sup>

In 1987 *NTNF* started the programme *Industrial Sustainable Technology*, an obvious answer to the World-commission report. The stated aim was to combine environmental precautions with industrial development and growth. The establishment was followed by attempts to identify areas where industrialisation of clean industry could take place. Three areas were picked to be the most interesting in the initial phase: Developing methods and equipment for long distance environmental supervision and detection, clean technology for fish farming and the more general development of clean industry and trade. In 1991 11 new programmes were started. The combination of prevention of pollution with export possibilities were clearly illustrated by the projects. The project *FORFOR* was aimed at large scale industrial production processes, *EKSPOMIL* had as its main goal to increase the value of exported clean production equipment and *KOMTEK* should improve the effectiveness and environmental aspects of municipal activities.<sup>54</sup>

In 1990, the Parliament passed a new chapter in the *Planning and Building Act*, which imposed the industry to make environmental impact assessments (*EIA*). By this step industry, i.e. big and middle-sized firms, were forced to present responsible solutions and mitigating measures due to industrial changes to the administration and others. As before, however, the administration had the authority to decide the fate of new industrial efforts. At the moment *EIA* seems to have become one of the most powerful means of regulations related to environment and industry.

In 1991 a Parliamentary report concerning the environmental activities in the municipalities were put forward. After some delay the new attempt became an effort to copy EUs decree of voluntary steering of environmental measures. This is tried out by using several documents for examination, planning and revision of the environmental activities in the

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<sup>53</sup> *Komite for Forurensingsspørsmål: perspektivanalyse på aktivitetsområdet forurensingsspørsmål.* Oslo: NTNF, 1979.; *Energi og forurensning - om behovet for forskning i Norge. Innstilling fra et utvalg oppnevnt av NTNF,* Oslo: NTNF, 1980.

<sup>54</sup> *NNTFs program for industriell miljøteknologi: Miljøtekniske utfordringer. Samspillet mellom forskning, næringsvirksomhet og forvaltning.* Oslo: NTNF, 1989; *NTNF-årsberetning 1991:* 17-19.

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municipalities. The last attempt is to carry out an environmental audits. By establishing rules for audits each municipality have to secure that their "deficits" are being corrected. Both in connection with NTNØ and with these administrative regulations we can clearly see the move from so called end-of-pipe technologies to "upstream anticipation", a mixture of process, product and product-chain oriented measures. The principle of prevention instead of reaction, has lead to closer focus on the early stages of products life cycles.<sup>55</sup>

## CONCLUDING REMARKS

This article has attempted to map some parts of a comprehensive field, pointing out central actor-groups and important incidents. I have also suggested a gradual change of the environmental field through three overlapping, but different phases. With regard to the phase-model the changes seemed to be as follows:

The late 1950s and the 1960s was a time of "problem identification" and "solutions shaping". In this phase "the problem" was an undefined, many-sided and flexible concern related to the tensions caused by the modern industrial state. The untouched nature and the "untouched" traditional way of living were to be protected. The solutions proposed was better regulations, new laws and scientific knowledge. Different initiatives such as the establishment of research institutions, the set up royal commissions and the passing of new acts were tried out. In this confusing situation science gradually came to be the main base for further negotiations of both problems and policies. In spite of more precise formulations of problems and policies, it remained a fragmented field.

The second phase from 1970 into the early 1980s was a breakthrough for environmental groups and thus for "environmentalism". In the same time administrative measures were set up to address the environmental problems in a more over-reaching way. The main problem was defined to be the destruction of the inner cities by the increased use of private cars and the destruction of the nature by the intensive exploitation of the water resources. The remedies were administrative and technical: To integrate environmental consideration, regulation and solutions into all sectors of the society, and to create end-of-pipe remedies to clean the worst types of pollution to air and water.

The third phase, the years between 1983 and 1996, was in many ways a time for reorganisation of both public and administrative initiatives. A new type of more specialised NGOs entered the arena, and

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<sup>55</sup> Carlo Aall: "Bordet fanger" i *Alternativ framtid* nr. 3 1995: 62 - 65

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the focus turned from energy and transport towards big industry. The end-of-pipe policy was reformulated to cleaner production and in a more limited fashion technology assessment. Another feature of this period was the field being professionalised and technocratised. The greening of all sectors of society has made expertise an obligatory point of passage for further negotiations between the various domains. In that respect public participation on the policy level has been dependant on highly skilled and trained experts.