Chapter 5
Selected European Oil Spill Policies

INTRODUCTION

In order to investigate oil spill technologies in use abroad and to learn how the United States might benefit from the oil spill experiences and policies of some other countries, OTA staff visited four countries bordering the North Sea in September, 1989: France, the Netherlands, the United Kingdom, and Norway. OTA's trip was coordinated by the International Petroleum Industry Environmental Conservation Association and included visits to a number of government and industry organizations in these countries. The four countries selected represent a wide range of technologies and countermeasures policies. Below are some of the highlights of our findings.

FRENCH OIL SPILL POLICY

The French seriously began to consider a comprehensive approach to fighting oil spills in the aftermath of the *Torrey Canyon* grounding off England in 1967, but French policy evolved significantly as a consequence of France's unfortunate experience with the *Amoco Cadiz* spill in 1978. This accident, in which approximately 223,000 tons (68 million gallons) of oil were spilled along the Brittany coast, was about 6.5 times as large as the *Exxon Valdez* spill, making it the fourth largest in history (table 5-l).

Notably, the French have assigned responsibility for fighting oil spills at sea to the French Navy, whose responsibilities are generally the equivalent of those of both the U.S. Navy and U.S. Coast Guard. Although emphasis is placed on spill prevention, once a spill has occurred the French Navy has the authority to use whatever means are deemed most appropriate to fight the spill. Oil that has reached the shoreline is the responsibility of local authorities.

For fighting oil spills at sea, the offshore area surrounding France has been divided into three maritime regions. Oil spill responses within each region are directed by the responsible Maritime Prefect, a senior Navy officer who is also responsible for the defense of the area.[1] The Maritime Prefect's first priority is to prevent maritime accidents by enforcing navigation regulations. Traffic separation lanes have been established in some areas, and large, ocean-going tugs are used as both "watch dogs" and rescue ships. In the event of a spill, the Maritime Prefect functions as onscene commander rather than onscene coordinator, and hence has considerably more authority than his U.S. Coast Guard counterpart. (If a similar arrangement were in effect in the United States, *at least* **4** "maritime prefects, " possibly U.S. Coast Guard officers, would be required, one each for the East, Gulf, West, and Alaskan coasts). Relatively minor spills are handled with local equipment. If a spill occurs that is larger than local resources can handle, an offshore marine pollution plan, POLMAR MER, is invoked, and the Maritime Prefect can then draw on the equipment and expertise of other regions, and, if necessary, of private stocks.

Local civil authorities are responsible for containment and cleanup when an oil spill reaches or threatens to reach land. Each of France's 26 coastal departments (states) prepares its own POLMAR TERRE response plan, which the prefect (governor) of each department can invoke in the event of a major threat. The plans identify priority areas to be

[1] G. Marchand, G. Bergot, M. Melguen, and G. Peigne, "French Know-How in the Prevention and Fight Against Accidental Oil Spills, " 1987 *Oil Spill Conference Proceedings,* Apr. 6-9, 1987, Baltimore, MD, pp. 15-22.

protected and specify how booms will be installed in these areas, what public and private equipment is available, and where storage sites and treatment centers for recovered products are located.[2] Small spills are handled by commune officials (mainly by fire departments) with local equipment stocks. The Army may be called for major spills and used to clean beaches with material and equipment from the POLMAR stocks. Having experienced major beach pollution and having recognized that a significant proportion of any major spill may reach the coastline no matter what measures are taken, the French have put much effort into research and development of beach cleaning equipment and into planning and training for beach cleanup. OTA found French beach cleaning technology and organization to be an impressive element of its oil spill cleanup plans. There is no comparable emphasis on defensive beach protection measures in the United States.

Stocks of equipment for fighting offshore spills are maintained at POLMAR centers in Brest, Cherbourg, and Toulon, the headquarters of each of the three maritime regions, and also in Le Havre, Lorient, Port de Bouc, and Ajaccio. Purchase and maintenance of this equipment is the responsibility of the French Ministry of Defense. Booms for the protection of sensitive nearshore and onshore areas are located in eight POLMAR centers around the country, so that no part of the coastline is further than 250 kilometers from a boom storage center. Equipment for land cleaning opera-

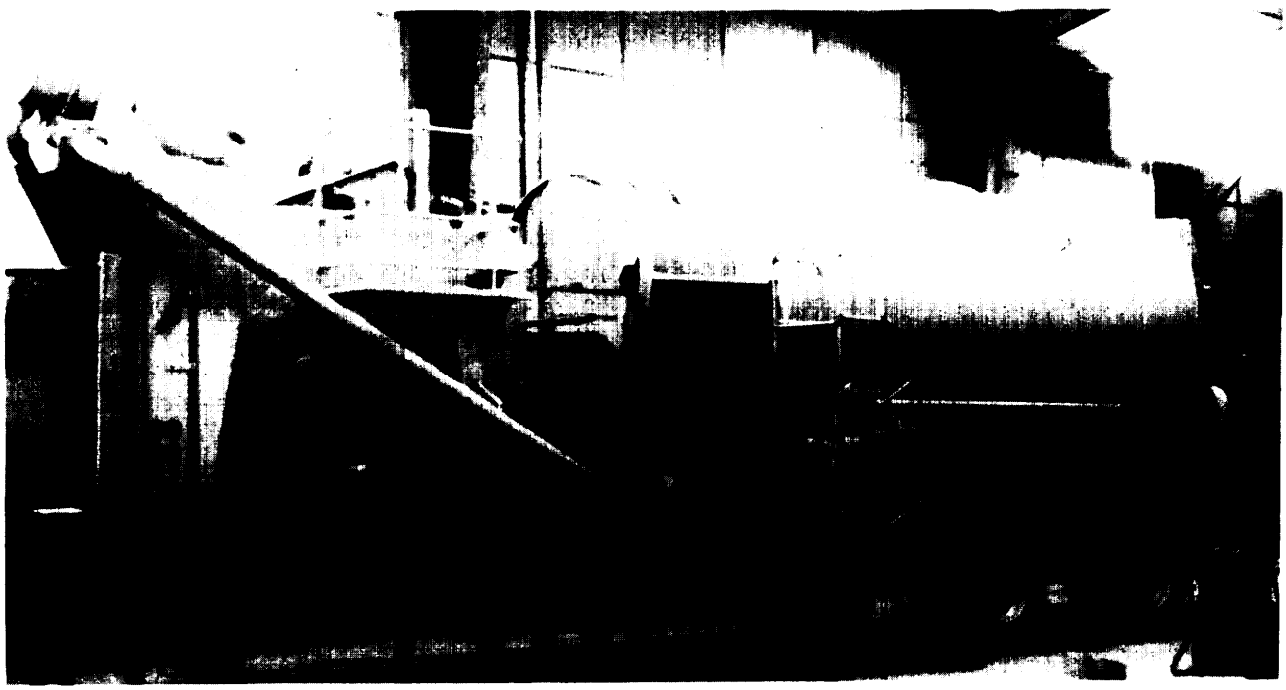

Photo credit: Jim Mielke

French sand washing machine.

[2]Ibid.

tions (e.g., sand washing equipment and hot water pumps) is stationed at two of these eight centers.[3] The Secretary of State for the Sea is responsible for the purchase of equipment for onshore activities.

Unlike the three other countries OTA visited, the French do not rely primarily on one countermeasure technique. Both mechanical equipment and dispersants are at their disposal, and the technique or techniques best suited to the circumstances will be employed. While recovery at sea is preferable, the Navy may use dispersants without conferring with others if the spill is seaward of environmentally sensitive areas (as a rule of thumb, where the water depth is greater than 30 meters).

French mechanical cleanup equipment is not radically different from that available in the United States. Some French technology, including the Egmolap skimmers successfully used in nearshore operations in Prince William Sound, is available in the United States. Beach cleaning technology (e.g., sand washers) is innovative and deserves some attention for use in the United States. Also, the French have been experimenting with biodegradation accelerating agents. They supplied one of the products (Inipol eap 22) for bioremediation experiments in Prince William Sound.

In the wake of the *Amoco Cadiz* oil spill the French government established CEDRE, the Center for Documentation, Research, and Experimentation on accidental pollution. Among other things CEDRE advises authorities responsible for pollution control about state-of-the-art techniques, assists and advises authorities during crises, trains personnel, conducts research to improve existing methods, and tests equipment (including occasional testing in small, deliberate oil spills at sea). The organization has a permanent staff of 26 and a budget of 10 million francs per year. There is no equivalent U.S. organization, although counterparts of many of

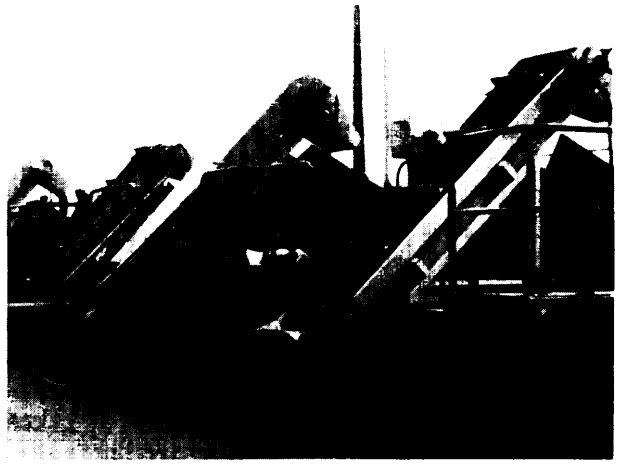

Photo credit Jim Mielke

French Egmolap skimmers stockpiled at the POLMAR center in Brest. Egmolap skimmers were used to recover oil in nearshore areas of Prince William Sound.

CEDRE's missions are spread around various U.S. Executive Branch agencies. CEDRE is a key element in the French oil spill countermeasures approach. Its existence ensures that at least some attention is devoted to oil spill issues in the sometimes long periods between major spills.

DUTCH OIL SPILL POLICY

The Dutch rely entirely on mechanical recovery for fighting spills as they have no confidence in the effectiveness of chemical dispersants. The most notable aspect of Dutch reliance on mechanical means is their use of large dual purpose vessels. Large skimming vessels have advantages over small skimmers because they can simultaneously skim and store much more oil than a small vessel and because they can operate in heavier seas. Nevertheless, large, dedicated spill vessels are expensive to maintain and operate and slow to respond to distant spill sites. The Dutch argue that a large vessel built purely for pollution control purposes would be idle for the greater

[3]Centre POLMAR de Brest, "The Fight Against Oil Pollution on the Coastline: Missions and Methods of the POLMAR Centers," May 1987.

part of its life and is therefore economically difficult to justify.[4] However, vessels that can be put to use in periods between oil spills are much more attractive. Hopper dredges are especially suitable for dual use purposes in the Netherlands: the country is small, has a sandy coastline, and has significant dredging needs in important ports and waterways. These dredges can be equipped with recovery equipment and can hold sizable amounts of recovered oil. Dredges normally operate in areas where the risk of oil spills is high– the approach channels to ports. Moreover, it takes only a few minutes for a hopper dredge to discharge its cargo and to be available for spill cleanup duties.

The Rijkswaterstaat, or State Waterways Board, is responsible for vessel pollution countermeasures at sea, along the coast, and in the main navigable waterways in ports.[5] It also conducts oil spill research. As in France, although the government takes charge in the event of vessel spills, the polluter is liable for all cleanup costs. Oil companies are expected to fight platform spills. In the event of a large tanker spill, one or more dredges may be called into cleanup action. Notably, dredges are under contract to the government rather than owned by it. Where the flash point of the spilled oil is high enough, any dredge under contract may be used. If the flash point is below 140°F, which is occasionally the case, a dredge designed to tanker specifications (e.g., the *Cosmos)* is used. When called, a dredge drops its spoil, proceeds to its base, is fitted with sweeping arms for oil containment and recovery, and sails to the spill site to begin recovery. The whole process generally takes about four hours, although Dutch dredges are seldom further than 20 kilometers from their bases.

The Dutch system is intended (perhaps optimistically) to be able to cope with a 30,000 cubic meter spill (about the size of the *Exxon Valdez* spill) in 3 days. Assuming that about 50 percent of a spill evaporates, mechanical equipment must be able to recover 15,000 cubic meters. In all, 7 units, each unit containing 200 meters of boom, 2 sweeping arms, a recovery vessel, and an assistant vessel, are available to meet this goal.

Dual use dredges could prove useful in the United States. Although no single approach is likely to be the magic solution for all situations, major port areas where dredges are operating would be primary candidates for such systems. As with other approaches, supporting equipment and facilities must also be available. The usefulness of oil skimming dredges in areas far from ports, for which significant time would be required to reach, is less obvious, although in some cases dredges may be able to steam to a spill site in time to make a difference in the cleanup effort. The Dutch State Waterways Board suggested to OTA that 10 to 20 sets of sweeping arms, located at key ports around the United States, might be adequate coverage. Existing dredges either owned or chartered by the Army Corps of Engineers could be converted to accept the sweeping arms. IHC estimates that costs to reconfigure dredges to accept sweeping arms would be about $400,000 per vessel, and that the equipment itself– which could be shared among several vessels–would cost about $600,000 per set. At present, the Army Corps of Engineers has no responsibilities for oil spills, so a change in the basic U.S. approach would be required.

[4]IHC Dredge Technology Corp., "The IHC Slicktrail and Its Possible Application in the U. S.A.," Prepared for U.S. Army Corps of Engineers, Trailing Suction Hopper Workgroup Session, Atlantic City, NJ, June 14-15, 1989.

[5]"Comparative Study of Pollution Control Policy and Contingency Plans in France and in the Bonn Agreement Member Countries," paper presented at the Nineteenth Meeting of the Bonn Agreement Working Group on Operational, Technical, and Scientific Questions Concerning Counter Pollution Activities, Renesse: May 3-6, 1989, p. 22.

UNITED KINGDOM OIL SPILL POLICY

Responsibility for responding to offshore tanker spills in the United Kingdom is accepted by the central government. The government provides the response equipment, directs the response operation, maintains and updates the national contingency plan, and reviews developments in pollution control equipments This authority has been delegated to the Marine Pollution Control Unit (MPCU) of the Department of Transport. The MPCU is assisted by the Coastguard, whose primary role with respect to marine pollution is to detect and report pollution incidents. Response to platform spills in the North Sea is the responsibility of the operator. Response policy for these spills is set by the Department of Energy, but the MPCU provides advice and may help with the cleanup operations if the operator's resources prove inadequate. Pollution that reaches shore is primarily the responsibility of local authorities, but the MPCU advises and assists as required. In a major coastal pollution incident (one beyond the resources of a local authority) the MPCU would set up a Joint Response Center and would then coordinate and lead the onshore response to ensure a fully integrated at-sea and on-shore cleanup operation.[7] Stocks of specialized beach cleaning equipment are held by the MPCU to supplement local resources. Cleanup costs are initially borne by the MPCU, but where the polluter can be identified, he will be required to refund the costs of the measures.

It is the policy of the British government to rely on dispersants as a first line of defense for oil spills; mechanical recovery plays a secondary role. This policy is based on the government's lack of faith in the effectiveness of mechanical equipment in weather conditions and sea states typical of the North Sea and other waters surrounding the United Kingdom and on the view that recent advances in dispersants have improved their effectiveness and made them much less toxic. According to the MPCU General Information Notes, "The only operationally proven technique for combating oil at sea in the conditions prevalent around the coastline is spraying with dispersants."[8] Only dispersants which have passed appropriate tests may be used. Immediately after a spill occurs, a determination is made as to whether dispersant use would be safe and effective. The MPCU consults with the Fisheries Department and the Nature Conservancy Council on the appropriateness of dispersant use in sensitive areas and in water less than 1 mile from shore or less than 20 meters in depth.

The MPCU currently has seven airplanes under contract for applying dispersants. Two remote sensing aircraft are available to direct the response effort. Aircraft and dispersants are strategically positioned at airports around the country. During daylight, aircraft must be ready to fly within 30 minutes of notification; at night they must be ready within 2 hours. Hence, the MPCU is able to start spraying dispersants very soon after a spill occurs, an important advantage since effectiveness depends on early application, and in most cases oil can no longer be dispersed after about 48 hours. The Unit also has dispersant spraying equipment fitted to a number of commercial tugs located at strategic positions around the U.K. coast; a small amount of mechanical recovery equipment to deploy in chartered vessels; a stock of cargo transfer equipment for lighter-

[6] W.H.H. McLeod, "Control of Oil Pollution Response Activities," *The Remote Sensing of Oil Slicks*, A.E. Lodge (cd.) (London: John Wiley & Sons, Ltd., 1989), p. 115.

[7] Department of Transport, "MPCU General Information Notes. "

[8] Ibid. p. 10.

ing operations; and stockpiles of beach cleaning equipment.

During OTA's visit, two tankers collided off the Humber Estuary, resulting in an oil spill of 800 tons. The MPCU determined that the oil could be dispersed, and had the spraying operation under way within 3.5 hours. In the United States, both the decision to use dispersants and the mobilization of airplanes and ships may take much longer.

With available dispersant equipment, the MPCU maintains it can treat 5,000 tons of oil at sea in a 48-hour period. Planned upgrades in the aircraft fleet will increase this capability to 14,000 tons. The MPCU assumes that in most coastal spills the greater part of the oil will come ashore and estimates that with the assistance of MPCU beach cleaning equipment a local authority can clean up some 6,000 tons of oiled material from beaches every 7 to 10 days.

In the event of a very large spill, the MPCU may ask for assistance from neighboring countries. The United Kingdom and seven other countries bordering the North Sea have entered the Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil, commonly called the Bonn Agreement, to facilitate the sharing of equipment and the exchange of information about oil spill countermeasures. The United Kingdom also has bilateral oil spill agreements with France (the Manche Plan) and Norway (the Norbrit Plan). Although no formal agreement exists between industry and the government, the MPCU may also ask for assistance from the oil industry's oil spill response base, located in Southampton, England. The Southampton base currently maintains one of the largest stocks of oil spill equipment in the world, valued at about 4 million pounds. Exxon is a paying member of this cooperative, and was therefore able to use about half of the Southampton stock in the *Exxon Valdez* spill. The Southampton Base is a joint venture company. The full participants are Esso, British Petroleum, Shell, Texaco, and Mobil. These full participants can call on a maximum of 50 percent of the available equipment to respond to spill emergencies worldwide. Petro Canada is a lesser participant and, as such, may only use equipment in proportion to its contribution.

The MPCU also funds a research program to develop improved techniques for predicting the behavior of spilled oil, dealing with it at sea, and predicting its environmental impact. This program also covers hazardous chemicals.

NORWEGIAN OIL SPILL POLICY

Oil pollution control policy in Norway is the responsibility of the State Pollution Control Authority (SPCA) within the Ministry of the Environment. For major pollution, the SPCA presides over the Government Action Control Group, which also includes representatives from other government ministries, the oil industry, and the scientific community. Responsibilities for actual cleanup are divided among the SPCA, local authorities, and the offshore oil companies. In general, the polluter is responsible for cleaning up oil spills, but if the polluter is incapable of handling a spill or if extra help is required, the SPCA may, at its discretion, take over the operation.[9] In this sense, Norwegian oil spill policy is similar to that of the United States. In practice, the oil and gas industry has prepared specifically to respond to offshore platform spills, while the SPCA generally expects to respond to spills from ships– an important difference between U.S. and Norwegian approaches.

The SPCA has decreed that oil pollution will be fought by mechanical means to the extent possible. Dispersants are used only if mechanical cleanup has proved ineffective and

[9]The Norwegian State Pollution Control Authority, "Oil Pollution Control: Emergency Services in Norway," February 1983.

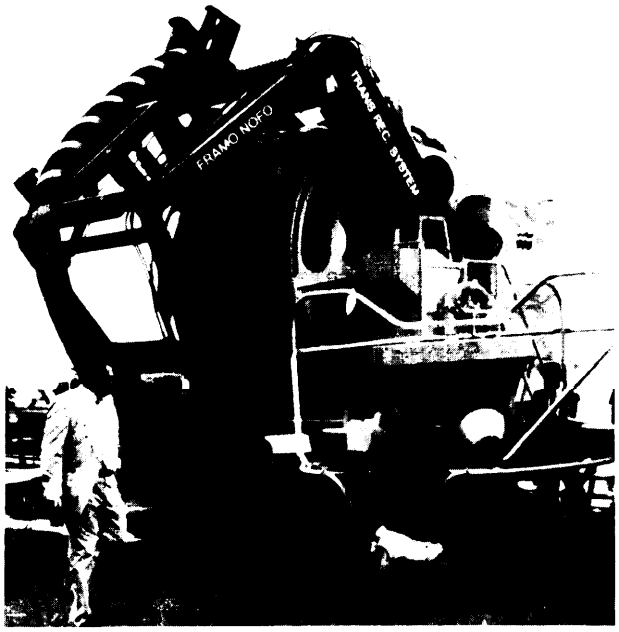

Photo credit: Jim Mielke

Norwegian Transrec weir skimming system.

only with approval from the SPCA. The SPCA requires that the offshore oil and gas industry be able to recover 8,000 tons of oil per day, that the equipment for doing so be able to operate in significant wave heights of up to 2 meters and in currents of up to 1.5 knots, and that this equipment beat the spill site within 48 hours of a spill. The SPCA has also imposed requirements on refineries and large terminals. These are required to be able to cope with 5,000-ton spills.

To meet offshore requirements, the eleven oil and gas companies that operate on the Norwegian continental shelf have organized the Norwegian Clean Seas Association for Operating Companies (NOFO). NOFO maintains a total of 14 oil recovery and transfer (Transrec) systems and 8,750 meters of heavy duty boom at 5 strategic locations along the Norwegian coast. The Transrec systems have been designed for operation in rough North Sea conditions and are among the largest skimming and transfer systems available anywhere. These systems have been designed to be mounted on the large industry work boats that make regular shuttles between shore bases and offshore platforms, and, hence, are never far from an equipment depot. These boats have a storage capacity of about 1,000 tons.

Local authorities are responsible for fighting spills on and within 3 miles of the coast. Fifty-two municipal and intermunicipal contingency areas have been designated, and within each area an Oil Pollution Control Committee, with direct responsibility for the cleanup effort, has been established. Local resources are used for small spills. The costs of municipal oil spill equipment are shared equally between the central and local governments.

Spills that are larger than can be handled locally and/or beyond the capacity of the polluter to handle are in part or totally taken over by the SPCA. The SPCA has established 12 equipment depots at strategic locations along the coast. Each depot is stocked with about $1 million (U. S.) worth of equipment, including heavy, medium-heavy, and light booms, one large and two smaller skimmers, and a supply of beach cleaning equipment. In addition, the SPCA has contracted with a number of coastal tankers, tugs, and purse seine fishing vessels. These vessels are on call and maybe used in a large spill. The purse seiners can be equipped with skimmers and operate as both oil recovery vessels and oil storage vessels. In all, municipal, state, and private organizations have established a total of 17 oil spill depots along the coast containing about 60 miles of light and heavy booms and 300 skimmers. Numerous storage and boom towing vessels are on call.

Norway has made a strong commitment to oil spill response training. The SPCA's Oil Spill Control Center in Horten offers a series of courses and exercises in oil spill control. A most impressive aspect of this program is the wide range of personnel that participate: virtually all municipal, state, and private employees involved in decisionmaking and/or cleanup operations in Norway receive train-

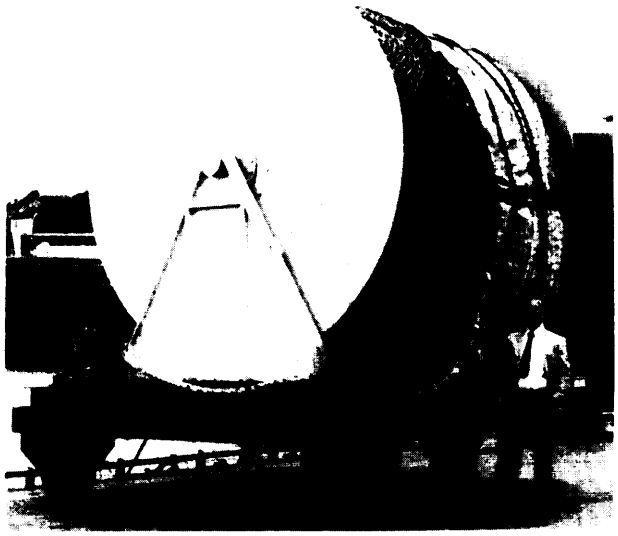

Photo credit: Bill Westermeyer

Large offshore boom on reel, used by the Norwegian Clean Seas Association for Operating Companies (NOFO).

ing. The goals of this program are to train personnel to know their responsibilities in an emergency spill situation and to give them the knowledge and experience needed to meet these responsibilities. As one notable training device, the Center has developed an elaborate "tactical exercise." In this exercise accident situations are simulated and trainees play the roles they would play in a real emergency situation. Such roles may range from state or municipal decisionmaker to master of a vessel to a fisherman complaining of damaged gear. In addition to simulations, major seagoing exercises (which can include experimental, controlled oil spills) are conducted yearly. A consequence of the emphasis on training in Norway is that those with oil spill cleanup responsibilities at all levels of government and industry– an estimated 3,000 people—are well informed about the decisionmaking process and about the types of things that can go wrong. Uncertainty about how to respond appears to have been reduced to a minimum.

GENERAL COMMENTS

There exist almost as many approaches to fighting oil spills in Europe as there are European countries (table 5-l). The degree of reliance on mechanical cleanup methods is one area, for example, where the full range of possible approaches are exhibited: some countries rely exclusively on mechanical cleanup methods, others on both mechanical methods and dispersants, and still others almost solely on dispersants. No European country, however, relies on burning as an important part of its spill response arsenal. Some other variables include the type of mechanical equipment preferred, the government agency assigned primary authority for oil spill response, the division of authority between local and statewide officials, the amount of oil for which countermeasures must be prepared to deal, the role of private industry in cleanup efforts, and the preferred approach to training, drills, and equipment testing.

These differences are based, in part, on circumstances peculiar to each country, e.g., the use of dual purpose dredges seems to make particularly good sense in the Netherlands, given the amount of local dredging activity, as does the use of large work boats for countermeasures platforms in Norway, given their utility in rough seas and the fact that these vessels regularly shuttle between the offshore platforms and shore bases. No doubt different approaches are also based on the different experiences of each country. In European countries, as in the United States, progress is made, much of the time, by the pressure of events, and revisions in contingency plans have been made in several countries in the aftermath of major pollution incidents.[10] Importantly, some differences among countries seem to be based on different perceptions about the effectiveness of a technique, about risk, and/or about costs v. benefits, i.e., on

[10]Op. cit., footnote 5, page 39.

Table 5-1 -Summary of Oil Spill Response Arrangements

Country	Central government departments primarily involved	Responsibility for clean-up		Policy for clean-up at sea	Clean-up resources
		At sea	On-shore		
Belgium	Ministry of Defense Ministry of Interior	Navy	Coastal municipalities; Civil Defense Corps	Dispersants applied from vessels	Limited mainly to dispersants and spraying equipment.
Denmark	Ministry of Environment	National Agency for Environmental Protection	National Agency for Environmental Protection; coastal local authorities; Civil Defense Corps	Containment and recovery almost exclusively although provision for limited use of dispersants	Specialized vessels equipped with booms and skimmers. Also equipment and materials for shore clean-up in district stockpiles.
France	Secretary of State for the Sea Ministry of Defense Ministry of Interior	Maritime Prefect (Navy)	Coastal communes: Commissioner of the Department	Containment and recovery preferred but dispersants used in designated areas	Extensive stocks of specialized equipment and materials in regional stockpiles. Also strike teams and aircraft for dispersant spraying.
Federal Republic of Germany	Ministry of Transport	Federal Board of Waterways and Navigation; coastal states	Coastal states	Containment and recovery preferred but dispersants also used in North Sea	Specialized vessels, booms, skimmers, spraying equipment and dispersants.
Netherlands	Ministry of Transport and Public Works	North Sea Directorate of State Waterways Board	Coastal provincial and municipal states	Containment and recovery exclusively	Specialized vessels, including combined dredgers/oil combating ships equipped with oil recovery equipment. Other vessels for deploying booms. Other equipment held by salvage and private contractors.
Norway	Ministry of Environment	State Pollution Control Authority/Maritime Directorate	Coastal community and intercommunity areas	Containment and recovery almost exclusively, but will consider dispersants if mechanical means are ineffective	Extensive stocks of specialized equipment and trained response teams at 12 regional centers.
Sweden	Ministry of Defense	Coast Guard Service	Municipal fire brigades; provincial authorities	Containment and recovery preferred although dispersant application permissible under certain conditions	Large fleet of vessels equipped for anti-pollution work, Extensive stocks of clean-up equipment in some 30 coastal sites.
United Kingdom	Department of Transport	Marine Pollution Control Unit of Maritime Directorate	Marine Pollution Control Unit of Maritime Directorate; coastal local authorities	Aerial application of dispersants; containment and recovery where applicable	7 dedicated spraying aircraft, vessel-mounted spray gear and extensive stocks of dispersant. Also containment and recovery equipment and equipment for shore clean-up in 3 regional stockpiles.

SOURCE: J N Archer and I C White, "Organisation to Combat 011 Spills: The Case for Coordination of Government Practice, " International Tanker Owners Pollution Federation, p 5

many of the issues currently being debated in the United States.

It is clear that no single countermeasures practice will be applicable in all locales and for all types of oil spills. This is especially true in the United States, a large country with thousands of miles of coastline. Yet some approaches adopted in Europe deserve serious consideration for applicable parts of the United States. Among these:

- equip existing dredges with oil recovery capabilities (as in the Netherlands) in the U.S. port areas where dredges routinely operate,
- expand the use of supply vessels as platforms for heavy duty skimmers (as in Norway) in such oil production areas as the Gulf of Mexico and Southern California,
- preapprove dispersants for use in nonsensitive areas using on-call airplanes for delivery systems (as in the U.K.),
- expand training and contingency planning exercises (as in Norway).

Despite differences, several generalizations about European oil spill response policies may be made. With respect to terminals, refineries, offshore platforms, and other fixed facilities, the general rule is that the party causing the pollution should clean it up. Operators of these facilities are expected to have contingency plans and to provide equipment and materials in the event of a spill.11 Direct government involvement in the response generally only takes place if the polluter is unable to cope with the spill. Virtually without exception, however, the central government– whether represented by the ministry of defense, environment, transportation, etc. in any given country– is assigned responsibility for vessel spills.

> Most countries accept that it would be unrealistic to expect the same level and promptness of response if the polluting source was a vessel at sea, especially if the owner or operator had no presence in the country whose shores were threatened. For this reason, in northwest Europe the responsibility for combating oil pollution from tankers and other vessels is normally accepted by governments on the understanding that the costs of any reasonable measures taken will be recoverable from the owner and his insurer.[12]

For these types of spills, unlike the current situation in the United States, both *the responsibility and the authority* for cleanup are in the hands of the central government.

Also, there is a distinction in most European countries between those responsible for combating oil at sea and those responsible for dealing with it on the coast.[13] On shore, responsibility for implementing initial cleanup measures usually lies with local authorities, with the central government often providing advice and coordination. As the actual or potential impact of a spill increases, central governments assume more responsibility, and are able to provide equipment, logistic support, and technical and financial assistance. Coordination between local onshore responsibilities and central government offshore responsibilities is usually the charge of a single government department or committee. Several European countries (e.g., France and Norway) appear to be far better equipped and/or organized than the United States to respond to spills that reach or threaten the coast.

[11] J.N. Archer and I.C. White, "Organization to Combat Oil spills: The Case for Coordination of Government practice," The International Tanker Owners Pollution Federation Ltd.

[12] Ibid. p. 3.

[13] Ibid. p. 4.

A wide variety of mechanical cleanup technology is used in Europe. Some types of booms and skimmers in use or under development may offer some marginal advantages to equipment manufactured in the United States; however, OTA found no evidence that European technology was dramatically better than that available in the United States. Much of this technology is, in fact, marketed in the United States, and those responsible for purchasing equipment are (or are becoming) familiar with it. Some European equipment was used in the *Exxon Valdez* oil spill. French Egmolap skimmers used in beach cleaning were reportedly particularly successful.

OTA was impressed with the total amount of equipment available in Europe. In the event of a major spill, countries have not only their own local, regional, and national equipment stocks on which to draw, but could also have access to equipment from other nearby countries and from the private sector. Several cooperative agreements exist. In addition to the Bonn Agreement, already discussed, the Commission of European Communities (CEC) in Brussels has a task force that can provide expertise to member countries that need advice. The CEC maintains a list of equipment throughout Europe that potentially could be used in the event of a large spill. Also, a number of bilateral agreements exist to facilitate cooperation regarding oil spills occurring on or near the offshore boundaries. (While helpful, these bilateral agreements do not always work to each country's satisfaction, e.g., when one country's policy is to use dispersants and the other's is to rely on mechanical equipment).

All European countries OTA visited assured us that they were prepared for major oil spills. We suspect that had we toured U.S. facilities before the *Exxon Valdez* accident, we would have received similar assurances, so European confidence is at least somewhat questionable. On the whole, however, European countries are better organized than the United States, have more resources on which to draw, and conduct more frequent training exercises. In part this is due to activity undertaken in response to unfortunate experiences with their own major oil spills. As some Europeans readily admitted, no country, no matter how well organized and equipped, would have been able to cope satisfactorily with a spill the size of the *Exxon Valdez* spill — particularly in such a remote location.