

HYDROGRAPHY IN THE NORTH-SOUTH DIALOGUE

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Paper presented at Commission 4 of the International Federation of Surveyors during the XVIIIth FIG Congress at Toronto, Canada, June 1986, and reprinted with the kind permission of that organization.

SUMMARY

Hydrography may be defined as a specialist knowledge of the maritime environment. Though it was confined, until a short time ago, to a narrowly specialized field, hydrography today sees its horizon widen to include many sectors of human activity at sea.

Hydrography has, indeed, always been closely linked to the maritime elements of movements of civilisation. Today it is there, in these uncertain approaches to the year 2000, in the worldwide challenge which we refer to as the 'North-South dialogue'.

Supporting this statement involves analysis of all the components of hydrographic needs, not only from a technical point of view but also from an economic, geographic, political and strategic viewpoint.

Within the very specific world of hydrography, it is not surprising to rediscover all the difficulties and paradoxes of the North-South dialogue. But such paradoxes must be removed. Such difficulties must be surmounted. The potential policies for North-South cooperation in hydrography must be examined from a technical perspective, but also with economic and sociological realism which implies taking into consideration the clearly understood interests of both the North and the South.

A preliminary compromise appears feasible. It involves a regional and supra-national approach to investment and projects in hydrography. Is it unrealistic to believe this possible?

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Seers have often been mistaken, but one of their forecasts, at least, receives confirmation daily in these closing years of the millenium. That is the one which foresaw, and still foresees, a prodigious increase in potential and means of communication between the inhabitants of this planet. This 'communications civilisation' will no doubt not eliminate political and ideological frontiers between nations, but it will impose dialogue into the seeking of necessary sociological, cultural and economic compromises. Between industrially developed countries and those which are at the dawn or morning of their economic development, this communication — desirable and obligatory — is referred to as the 'North-South dialogue'.

Such a dialogue concerns multiple fields, with a greater or lesser degree of acuteness and varying importance. Hydrography is one of these fields, certainly a very particular one, but one whose latent international quality — the sea is a property of the universe — enables it to be listed, without a doubt, among the problems of the North-South situation.

Here we will take hydrography as it is most generally defined : the ultimate and applied knowledge of the maritime environment. The definition extends beyond the context of mere bathymetry to which it is often confined. It also appropriately defines the essentially concrete nature of its activities. The hydrographer is working to fulfill the needs of navigators and all those for whom the sea represents the medium for their profession, their activity, their leisure or their life.

Hydrographic knowledge concerning maritime areas is unevenly distributed among regions and among countries. Almost everywhere it is largely insufficient. Many States have become independent since the middle of the twentieth century and thus has arisen a crucial problem of national hydrographic responsibility, amplified by differences in technology and the world economic crisis. Putting hydrography back in the North-South dialogue is thus an urgent matter. Proof of this is given in recent articles on the subject of international cooperation in hydrography, in particular during the last two Congresses of the International Federation of Surveyors (FIG) in Montreux (1981) and in Sofia (1983).

HYDROGRAPHY AND MOVEMENTS OF CIVILISATION

A historical analysis would easily enable it to be shown that hydrography has always been intimately linked to the maritime elements of movements of civilisation. Today it would appear worth while to place hydrography back in the concept of the 'North-South dialogue', in a dialectic approach which should help to pinpoint the problem and prepare tentative solutions.

Geopolitics likes simplifications. It would like to pin-point monolithic blocks. The expressions 'North' and 'South' seek to break down such blocks and, in so doing, immediately reconstitute new ones. The concept of a North-South dialogue is a generalization which is excessive but also convenient, tenacious, and attractive.

For example, the concept certainly disguises the heterogeneity of the North and also that of the South. Aspects of multi-polarity, of cross-division, and the history of leadership by certain nations, are realities which are naturally sensitive ones, particularly as regards scientific and maritime matters and thus those in the field of hydrography.

Similarity of situations, nevertheless, justify these entities. In the North, there would no doubt be more expertise, but at the same time structures that sometimes lack flexibility or are inadequate. In the crisis context, it is an appreciable restriction in financial possibilities, together with, in the name of egocentric realism, the seeking of materialistic returns in the short term (we might often say, in the short-sighted terms). In the South, the space appears wider. It is true that there is so much to be done. But here, insufficient technological capabilities are frequently accompanied by the impossibility, at least in the near future, of making large financial investment and also, sometimes, by a lack of organization or the political will to act.

It is not necessary to prove the need for dialogue, communication, and transfers between North and South. But it would be relevant to recall the difficulties of institutionalizing such links. We know the risks and the perverse effects of certain trends that are neo-colonial or supposedly world-englobing. We should also specify and maybe de-mistify, terms like 'cooperation', 'coordination', and 'transfer of technology', which sometimes conceal inefficiency, ineffectiveness, and a lack of realism. Solutions which aspire to be universal ones overlook the constraints of natural competition and, most often, lead to no more than the formulation of pious wishes. As to bilateral agreements, these involve latent risks of an unbalanced approach which might lead to rancour and frustration and thus, in time, to failure.

Hydrography has always (since its origins) been strongly stamped with nationalism. This is because the idea of surveying — a fundamental one — leads to familiarity with the national shores and maritime area. Beyond the need to aid maritime navigation, hydrography now has several applications. This only serves to strengthen the desire for independence and self sufficiency in this respect. States want — or would like — to have at their disposal adequate hydrographic resources, able not only to facilitate maritime navigation locally, but also to make them familiar with the geo-cartographic aspects of their seas, the oceanographic aspects of their maritime environment, the legal aspects of their maritime boundaries, and the strategic aspects of their theatre of coastal defences.

At the same time, conditions are ripe for a world-wide approach to hydrographic problems. International maritime exchanges become more numerous and more diverse with the formidable new economic deployment as the century closes. The transport of goods by sea, which is only marginally rivalled by air freight, must fill the needs of the economic development of the 'South', the setting up of new multi-national production circuits, an increase in consumer demand and diversification of distribution channels. It is no longer a question of opening access to a few selected ports, but, henceforward, entire stretches of maritime coasts must be surveyed.

At the same time, we have witnessed a certain universalisation of technical responses. World-wide systems of positioning at sea have seen the light of day : TRANSIT, OMEGA, GPS/NAVSTAR, etc. For national charts, a set of common standards has been established by the International Hydrographic Organization (IHO) and agreed by the Member States of that Organization. Along with these, the IHO has instituted a system of international charts.

Finally, it is relevant to mention the importance of oceanographic research and hydrographic work in the new universal awareness of matters concerned with the Law of the Sea. Thus, the 1982 Convention on the Law of the Sea, in Article 266 notably, calls explicitly for the transfer of technology and international cooperation in the field of marine sciences and techniques. Articles 276 and 277 of the same Convention recom-

mend the creation of regional centres charged with setting up projects in which hydrography is not overlooked.

The internationalization of outlooks — a consequence of the lightning progress in communications — and the world-wide spread of the industrial economy would seem to augur that hydrography will rapidly expand beyond its purely national context. But let us not be mistaken. If hydrography today is taking a more 'economic' direction, it is still not yet a very common market product. It would be difficult to assess it at its true value, but costs of 2,000 dollars per square kilometre for a complete bathymetric survey or, again, of one million dollars per ship-year, are no doubt not far from the truth. Besides, it is not only a matter of exchanging data, measurements or information, but also one of transfer of services, technologies, training, and expertise.

Let us now try to translate this dialectic into problematic terms. In practice, what is the status of the matter today? What are the real needs in hydrography of States — and in particular, those of the South? Do new technological tools exist capable of radically changing the response to this expressed need?

HYDROGRAPHIC NEEDS IN THE WORLD TODAY

The statement that hydrographic knowledge world-wide is insufficient surprises the non-initiated, even when they have been reminded of the many aspects of the problem. That a quantity of unexplored areas should exist in the heart of the oceans, alongside great coral reefs or drifting ice floes, can be accepted. But to learn that potentially fatal dangers have recently been discovered off the coast of Scotland, Brest, New York or Singapore, that the charts one imagined to be so reliable are sometimes mediocre or open to suspicion — this is enough to astonish and disturb anyone.

That is, of course, forgetting that the earth is blue, that the seas and oceans cover an area of 360 million square kilometres, 27% of which is situated in areas away from abyssal depths. Setting aside those abyssal depths, there are therefore 100 million square kilometres to be surveyed — an impressive figure, which should, of course, be interpreted after finely analysing the need for bathymetric knowledge — a need which essentially depends on the potential use of such knowledge. Loosely-meshed hydrography can certainly suffice in certain areas. There are other areas, on the other hand, where civil engineering work or navigation through narrow passages require a large-scale study which is systematic and has the area examined under a microscope, so to speak. Elsewhere, the natural evolution of the bottom will demand repetitive surveys that are as exhausting as they are costly.

To be astonished at the need for hydrography is also to forget that the spectrum of maritime and oceanic knowledge widens along with men's needs, their appetite for comfort and wealth, their demand for security, and their will to defend their patrimony against the aggressions of natural pollution or against undertakings of malicious intent.

It would obviously be desirable to be able to quantify the appropriateness — and thus the inappropriateness — of hydrographic knowledge in the light of the requirements of today and tomorrow. But that is a difficult undertaking on a national level and almost impossible on a world-wide scale. It would perhaps be a vain approach, anyway. What realistic project could be established after concluding that the fulfilment of such requirements amounts to 3%, if not 0.3%?

One will merely acknowledge that the task is a gigantic one, that it is everywhere expressed in hundreds of ship-years, in thousands of charting-years, and in millions of dollars.

It is true that new technologies permit us to hope that these figures will be reduced —with the exception, as always, of those representing the costs. The ocean will long remain a hostile and largely unpenetrable 'bloc'. Remote sensing is certainly a promise. Swept by great sweeps of laser beams from the sky, the seas will gradually give up the secrets of their surface or sub-surface. Shore areas will only escape such indiscreet investigation by hiding beneath mud and mangroves. It is also possible to envisage an acoustic approach on a vast scale thanks to the promises of tomography. It is probable, nevertheless, that the coming decades will still see hydrographers the world over —above all the 'poorest' ones — laboriously measuring out, back and forth, in boats and launches, the 'acres' of their domains.

In so doing they will thus answer, to the best of their ability, the needs of mariners whose ships, with their blind keels, skim narrowly over rocks, wrecks, sand-dunes and convulsive building up of coral, and also the needs of all those who wish to master the off-shore part of their economic zones and their continental shelves.

HYDROGRAPHIC COOPERATION BETWEEN NORTH AND SOUTH

The recognised necessity of assuming responsibility for hydrography in their country but, at the same time, the difficulty of the task, lead nations of the South to seek the cooperation of those of the North. The latter have scarcely any hydrographic potential to spare but, since they began earlier, they have more extensive and better developed means and more experience in the matter. The conditions under which sound and lasting cooperation, which is fair to both sides, can be established, are not easily met.

Potential concrete difficulties

There exists first, naturally, a financial problem for most of the countries of the South, whose resources are often extremely limited and who are confronted with a serious choice of priorities as regards their economic development.

But, beyond that, the problem of the transfer of technology is hardly an easy one to solve. The word 'transfer' itself is misleading. It is necessary, in fact, to communicate in depth and in a consistent manner if the technology 'graft' is to have some chance of taking. Otherwise we will witness some non-utilization of the human resources that were trained with great effort, and no reward from the material resources transferred at great expense. How many electronic surveying instruments are lying around at the back of cupboards in the South because they lack a spare part or because there are no qualified operators or technicians to make use of them? This difficulty is increasing as hydrography moves resolutely in the direction of high technology.

From the point of view of the 'receiving' country, it is a matter of avoiding many pitfalls. The risk of misuse of the technology is one, as we have just noted. But the recipient must also avoid the easy way out, which would be that of having the surveys

carried out by a foreign country, under the terms of a bi-lateral agreement which would only provide it with millions of figures — useful today, certainly, but out of date or inadequate tomorrow. It is better to acquire knowledge with a view to putting it to practical use than to acquire it simply for the sake of knowing. Beware, too, of an approach that is too Cartesian and one which would involve the risk of leading to excessive institutionalization and an inefficient and fruitless project.

Questions of another order arise for the 'donor' country. Does it reasonably have the possibility of expatriating a proportion of its resources, which are often already insufficient for its own needs? Why should it do so, even though it expects financial or economic returns, when in so doing it loses its own technological lead. No doubt, here, an appeal must be made, beyond strictly commercial considerations, to other concepts, i.e. the political or historic role, an investment of technology and manpower, a wider vision of the future.

The problematic aspect is again situated at the level of the couple : donor-recipient. How can one arrange for the really good partners — those with a combination of competence, a sufficient level of responsibility, and a true desire to achieve something — to meet, to talk and to come to an understanding? The question is far from being one of secondary importance as far as hydrography is concerned. Hydrography can be perceived, we have said, in many ways, notably by the receiving country, which must coordinate the expression of the requirements of its many applicants : national navy, merchant navy, port authorities, administrative authorities responsible for transport, communications and cartography, scientific research, etc. If no hydrographic structure already exists, a choice must be made of the administrative authority which is the most capable of assuming responsibility for these new matters.

As for the 'donor' country, it will be able to act through its hydrographic office, or through other official bodies responsible for maritime matters, or yet again, through private institutes and companies.

The intervention of international bodies may render such bilateral arrangements more complex while facilitating the establishment of contacts and the maintenance of the flow of exchanges.

The very nature of the problem, therefore, renders it a difficult one, compounded by the fact that States do not always deploy sufficient efforts as far as intensity and continuity are concerned. There are two basic reasons for this. The first, already mentioned, is the fact that hydrography is costly — very costly — and the positive and material results appear hardly striking. Sounding a fairway to check that there is nothing dangerous there is infinitely less spectacular — and therefore less rewarding from a political point of view — than building a bridge or a stadium. The second reason, true in many countries but fortunately not in all, is that the sea is largely ignored, or even disdained, no doubt because it is feared by man.

The sea is the opposite of the safe 'fireside' of home. It is dispersion and isolation in the midst of the infinite. To go to sea is to separate oneself from the village of one's birth and from the convivial city which satisfy the gregarious need of the peoples of yesterday and today. The awareness of the need for maritime development is, as a result, slow to develop and public opinion is less alive to hydrography as a consequence.

Solutions

Solutions exist, of course, for responding to the need; that is to say, for guaranteeing the transfer — or the sale — of data, systems, advice, technical assistance, and hydrographic expertise. Those solutions are more or less satisfactory, and can be listed in the following manner without necessarily being exclusive of each other :

- Survey Operations are carried out by foreign resources in the requesting country which, at the most, exercises merely a role of order-giver and observer. We have already stressed the low long-term value of such a solution.
- Engineers and technicians that the requesting country wishes to have undergo specialized training or back-up training in hydrography receive such training in particular institutions in the 'donor' country. While the contacts thus created offer positive aspects, many difficulties and failures are to be marked down to the past record of this procedure. It is possible to improve the conditions for receiving students abroad and to surmount the difficulties of language and communication. It is much more difficult to make good use of such personnel on their return home, when the hydrographic structures that should be awaiting them are insufficient.
- Training is given in the requesting country by foreign teachers and instructors. This solution avoids removing personnel from their own country and above all facilitates the development in symbiosis of structures in the country itself. It is nevertheless known that the possibilities of transfer by this means are limited and that the process is not sufficient on its own.
- One will therefore naturally be led to think of a more complex, and thus more ambitious, approach, which combines the previous actions with the setting up of networks of 'advice-consultancy-technical assistance' to help develop, in a continuous and flexible way, the structures and capabilities of the requesting country. Such institutionalisation can take the form of commercial-type contracts and also that of intergovernmental cooperation agreements. Examples of such an approach exist, with varying results. They succeed when the political determination is sufficiently strong and persistent and when it is carried through materially, i.e. financially. The country concerned must therefore take the necessary organizational decisions. It must also — above all — agree to the financial outlay, if necessary, perhaps with external aids, for setting up the infrastructures (buildings, survey ships, equipment, personnel) and covering the operating expenses.
- The latter solution is an appealing one. It satisfies the most Cartesian mind. On reflection, and in practice, it unfortunately appears a little too idealistic and does not seem to take sufficient account of realities. I think the principal criticism to be made is that it may over-estimate the persistency and determination, and the possibilities, of the partners in this bilateral dialogue.

In supposing the required continuity existed, one might ask questions, anyway, from a political viewpoint on the perverse effects of prolonging the 'marriage'. Would not the receiving country eventually find the sponsorship weighed too heavily? Would not the donor country soon find that it has, in fact, to bear a very great burden?

IDEAS FOR THE FUTURE

It is at this point in the reflection that I feel we must take into consideration again the multilateral aspects of the question.

Obviously, I do not wish to imply that the preceding solutions are to be discarded because they are poor ones. I simply think that an analysis of actions undertaken in recent years in the field of international cooperation in hydrography would show some lack of effectiveness. We must, therefore, imagine something more. Something that would also avoid certain perverse effects that are to be feared from purely bilateral solutions.

On the other hand, and still striving towards political realism and technical pragmatism, one must not forget that it is acknowledged that difficulties of functioning exist in certain intergovernmental organizations, sometimes paralyzed by the fact of their seeking after a world-wide consensus. I certainly do not have in mind either the International Federation of Surveyors or the International Hydrographic Organization in saying this.

That 'something more' I would propose is an extension on a voluntary basis of the action of the regional structures which already exist or which are to be created. There seems to me to be no doubt that it is at the level of the maritime region that it should be possible to :

- break the narrowness of the merely national and nationalistic outlook towards the hydrographic problem;
- create intellectual synergy by the development of technical dialogue;
- make possible heavier investment of funds, for example as regards the training infrastructure or the data base;
- and finally, bringing us nearer to the subject of this paper, facilitate the dialogue between the countries in the geographic area concerned, whatever the degree to which hydrography has been developed in each of the countries concerned.

The coverage of geographic areas by the Regional Hydrographic Commissions of the International Hydrographic Organization generally answers this need for North-South 'multiplexing'. It is therefore a matter of extending the action of such Commissions, which comprise the Hydrographic Offices of the States which are members of the IHO, to the other States in the region. Commissions should be created in areas which do not as yet have them : the Caribbean, the Indian Ocean, and the South Pacific Ocean, for example. It would, above all, be necessary to amplify the action of such Commissions in envisaging supra-national investment of funds and joint projects — this has already happened, but to a very limited extent — along with joint analysis of needs. Finally, such Commissions should work in association with all those in the area who are concerned with knowledge of the environment — the maritime environment in particular, of course — and with the consideration of this for economic activity.

The action of these Regional Commissions should of course remain under the coordination of the International Hydrographic Organization, whose extra-national component — the Bureau — has certainly very limited means but whose historic

foundation, prestigious image and efficiency are unanimously recognized. The IHO is, in fact, a remarkable institution of interdependence. Far from impeding its action, it is more a question of gearing it down.

I am quite aware of the fact that this regionalistic approach to international cooperation is hardly original. Eminent persons have often called for such an approach.

I merely endeavour here to have people share my personal conviction that, in the field of hydrography — but one could doubtless generalize — there now exist facts which are going to oblige us to come up with material, multinational solutions to our problems. It is a matter of not only internationalizing hydrographic needs and the new possibilities but also of the new constraints of high technology, and the escalating cost of investment and projects. It is also a fact that well understood agreement between nations has become a necessity for civilization. We must envisage with dynamism and broadness of outlook the solutions to this challenge in order to avoid a prestigious waste of time, money, energy and — above all — goodwill for both the North and the South.

Note : This paper is solely the personal responsibility of the author and cannot in anyway be construed to represent an official position of the French 'Service Hydrographique et Océanographique de la Marine'.

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