Future role of administration surveyors in India

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THE FUTURE ROLE OF ADMINISTRATION SURVEYORS IN INDIA

by

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India

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A dissertation submitted to the World Maritime University in partial fulfilment of the requirements of a Master of Science degree in MARITIME SAFETY ADMINISTRATION (MARINE ENGINEERING)

The contents of this paper reflect my own personal views and are not necessarily endorsed by the UNIVERSITY.

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ABSTRACT

Maritime safety Administration in any country needs a strong technical wing to fulfil its national & international obligations and this need is more over riding in India as it is in other developing countries. Over the years Administration surveyors have played an important role which generally covered the safety of ships and its personnel and remained conventional in its character.

However the recent rapid scientific and technological advances in ship design, operation and variety of marine activities demand that this role be reviewed in order to make surveyors more effective in face of new challenges posed by these developments and their associated hazards. This means that their jurisdiction should extend beyond the conventional parameters to suit the country's needs.

This paper identifies the need for change in approach concerning recruitment of surveyors, their functions to cover new areas and then goes on to propose improvements in the system. It also outlines a training curriculum for surveyors in order to equip them better for carrying out their functions more efficiently.
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Chapter 1 INTRODUCTION

Ships are the earliest mode of transport evolved by mankind and history tells us that there were sailors before any other professional appeared on the scene. It is, however, noteworthy that shipping remained devoid of any suitable control for a very prolonged period. Numerous shipping disasters during the late last century continuing well into the early part of the present one resulting in the loss of hundreds of ships and thousands of men stand testimony to it. These losses were conveniently written off as acts of God.

It had become obvious that it was too risky to depend on the skill of the captain and good luck alone and this led to causing the ships to some sort of control which went beyond the commercial parameters and concerned itself with the safety of ships and those who sailed in them. Some developed maritime nations were the forerunners in this respect but that apparently was not enough for an industry which is truly of an international character. Some uniformity in the evolution of these controls and their application is absolutely necessary. Imagine the chaos if more than one set of Rules of the Road were in force.

Inspite of the fact that there were mixed feelings from various states about the establishment of an all embracing
general maritime organisation, the birth of IMCO did take place in 1958 under the aegis of United Nations. Despite various earlier difficulties like modest mandate, meagre U.N. budget and a very slowly increasing membership IMCO took its place in the international organisational structure and in a relatively short period became a valuable of international shipping as a whole.

With the successful conclusion of SOLAS 1960 convention held under the auspices of IMCO, the worlds merchant shipping had finally found an internationally acceptable and relatively independent body concerned, interalia, with safety of life at sea. It had been a long wait since Samuel Plimsoll's early efforts. By 1970's many started wondering how the industry had managed without it. Name of the Organisation was changed to IMO in 1982 and today it is the foremost international body which provides a machinery to facilitate cooperation between its 127 member states for setting global standards for safer ships and cleaner oceans and encouraging nations to implement same.

Over the last two decades or so the picture of shipping has undergone vast changes. There has been an unprecedented technological advances affecting the construction, size and types of ships coupled with diverse type of cargoes carried in them. There has also been considerable activity in the offshore sector which is now an industry but with a regulatory structure still in its infancy. Development and environment are not necessarily compatible.
In the wake of these developments followed the complex problems of safety of units and men and that of protection of marine environments which have become more threatened than ever. The possibility that a casualty to some modern ships because of the quantity or highly toxic or flammable nature of their cargo, could adversely affect large area of the environment or the wellbeing and livelihood of many people living in vicinity has aroused some very relevant questions as to whether enough is being done to minimize such possibilities. It has become quite clear that proper control of these variety of units in way of construction, operation, manning and inspection require a different expertise which needs to be developed and constantly updated as experience and craftsmanship is gained.

The IMO has, over this period, brought forth a number of conventions, protocols, recommendations & codes of practices containing safe technical standards, rules & regulations to deal with this situation. But just the adoption of such standards will not achieve the end results. These standards need to be effectively implemented and enforced and this should be the prime concern of all member states to ensure through their maritime administrations. While a number of these conventions are in force but expediency is needed in implementing in many others like various annexes of MARPOL 73/78, grain rules etc. Control of offshore activities and control of substandard ships as part of port state control are areas which need to be covered more urgently and diligently.
However this process though so important is not so simple in the case of developing countries where constraints of various kinds tend to inhibit the fulfilment of such international obligations and in turn adversely affect the development of their maritime activities. Without active participation of these countries it will be impossible for IMO to achieve its objectives because after all eighty percent of its membership constitute of these nations. Lack of participation hence in contribution towards evolution of international standards will tend to undermine the ability of their ships to ply and compete internationally. This degree of maritime awareness in any country can only be improved through its maritime administration adequately supported by its technical wing geared to deal with these highly technical functions.

A surveyor on his part needs to acknowledge the importance of his active and genuine involvement in shipping and coastal environments not only as an official but as a responsible citizen & member of a coastal community entitled to a clean marine environment. This will require stricter controls to protect coastal waters from land based sources of pollution and those arising from offshore activities. This phenomena assumes greater importance in developing countries for reasons which will be discussed later. It is time that a surveyors role extended beyond the conventional one.

Shipping is presently passing through a period of fast
changes & by the time the requirements of a convention are put into practice it is found necessary to produce another set either due to inadequacy experienced in the existing ones or due to change in the shipping itself. In view of this it becomes imperative that developing countries must actively participate through their technical personnel in the various meetings of committees, sub-committees and seminars at the IMO in order to overcome practical difficulties because it is through dissemination of ideas only that uniform standards can be applied worldwide.
World economy has increasingly become dependent on the international sea transport system which forms not only a major means of transport of goods but the cheapest one too. Wherever possible coastal and inland waterways also followed suit. World's seaborne trade tonnage in 1980 had reached a figure which was seven times that of in 1950. Man has found increasing use of the sea not only in terms of transport but for several other purposes and coastal states have been constantly extending their rights of the continental shelf which today extends up to 200 nautical miles and named it as exclusive economic zone and yet this may not be the end.

However participation in this seaborne trade by developing countries through their own ships is relatively recent because the shipping was dominated by developed countries who had a lead in the maritime field due to industrialisation etc. The slow and late emergence of merchant marine in the developing countries can be attributed to several international and national constraints. Important among these is the lack in formulation of any maritime development programme in their national policy which is the offshoot of poor maritime consciousness. Such programmes can only be developed by an organised body consisting of technical experts in the relevant fields. It has now been widely acknowledged that setting up of such an administrative body is a must irrespective of the
size of shipping fleet of a country. The position in respect of many developing countries is such that they are still in the process of setting up such administrations and those who have done so are inadequately staffed and still rely on assistance from expatriate experts. IMO in this context has been of great help by providing technical assistance through its technical assistance programme.

The set up of such an administration may differ from country to country depending on their local needs but by and large it is in the form of a Directorate headed by a Director General and assisted by various administrative & technical staff at the head quarters and largely technical staff at the outports. This Directorate works under the direction of a responsible Ministry and under statute of the Merchant Shipping Act which every maritime nation enacts for the purpose of regulating its maritime operations & to serve national shipping interests with due regards to international obligations. The Act provides among other things for establishment of various bodies to serve such interests and for the appointment of statutory officials like Director General of shipping, surveyors, inspectors etc. for the purpose of exercising the powers, authorities & discharging the duties conferred upon such persons under this Act.

While the Ministry deals with larger issues relating to policy and legislation, Shipping Directorate is left to deal with the administration of the Act and with all
executive matters relating to merchant shipping. The MS Act has to be kept up to date and amended from time to time for the purpose of giving effect to the provisions of new international conventions as and when these are ratified. Various activities handled by the Directorate are enumerated in Appendix I.

2.1 National Maritime Administration & the IMO.

National maritime Administration is a vital link with the IMO and has a very important role to play when it comes to discharging international obligations. It is absolutely necessary that all the international conventions adopted by the IMO are accepted and applied by a large section of the shipping community otherwise these would tend to confuse rather than clarify shipping practices. No maritime nation can afford to isolate itself from the main stream of shipping. The administration must identify the areas of problems facing the country in its maritime activities and bring these into light at the IMO meets when the idea of new convention is being initiated. The draft convention document prepared by one of the committees or sub-committees and circulated to all the member states has to be properly gone through for giving necessary comments. Administration must represent itself suitably at the conference which is subsequently convened for adopting a convention where further discussions take place and comments are more closely examined. The convention
in its final draft form is adopted when accepted by majority of the governments and finally submitted to the member states for ratification. This whole procedure needs to be accelerated both at international and national levels. Ratification of a new convention by a member government places on it the obligation to take measures required by the convention in order to begin its implementation. This may entail a series of actions like preparation of primary and secondary legislation, strengthening of the technical wing of the administration, transmission of information to all concerned, instructions to surveyors and preparation of relevant press release etc.

The whole lot of this exercise may go in waste unless proper enforcement of the requirements is carried out and to ensure this a suitable system will have to be developed. This will again require a series of actions like establishment of legal regime to exercise control, survey, certification & inspection and lay down procedures and arrangements for the surveillance & detection of operational activities in contravention of a convention. It will be of great use if some of the surveyors in the administration are made to attend a short updating course in this concern.

International conventions set out bare minimum standards on the basis of which national administrations have to formulate their national regulations without which no convention requirements can be enforced. A list of such rules/regulations is given in appendix II.
Statutory functions carried out by the administration surveyors as part of Flag state or Port state control are either carried out at the head quarters or at the outports which are controlled by the Director General of shipping. India has a long coastline of about 4000 nautical miles and has 6.2 million G.R.T under national flag consisting of 434 ships of 300 G.R.T and above. The Directorate General of Shipping is based at Bombay and controls three major & six minor marine districts manned by a total number of about thirty surveyors including ship surveyors. But at no stage there is a full complement of filled posts. There is no separate allocation of surveyors for Flag or Port state duties but some functions like load line, Cargo ship safety construction are delegated to Classification Societies thus leaving the administration surveyors free for inspections, examinations, casualty investigations & other statutory functions. India has not yet ratified several international conventions including I978 Protocol (SOLAS) & Marpol 73/78. A list of activities handled by Department surveyors at the Head Quarters and the outports is given in appendix III.
2.3 Delegation of statutory functions to classification societies by the Administrations.

The classification society surveyors form an important support force for the administration since no administration is in a position to fulfil all its obligations by itself. Well known classification societies have been on the shipping scene for a long time and have considerable experience and expertise for the type of work they traditionally handle. Their surveyors have the advantage of following all merchant vessels throughout their life. Classification societies represent an independent group of professionals providing a worldwide service to the maritime industries. They enjoy computer facilities and have a large outlay for Research and Development. A society is also in a better position, because of its internationality to advise the ships on some unilateral action which a particular state may take for the purpose of requiring compliance of its national regulations on visiting ships.

Although generally in competition with each other some well known societies have joined together to form an International Association of Classification Societies called IACS which has a consultative status at the IMO and its representatives attend all its meetings as observers to contribute usefully to its work. Societies are usually
delegated, to a varying degree, with survey work but not the inspections. This delegation, however, does not relieve the national administration from the responsibilities associated with these surveys.

Even where a classification Society acts on behalf of a National administration and advises an appropriate action in a given set of circumstances, decisions on matters of policy remain with that Administration. Regulations which are significantly operational in content may, in the event of non-compliance, require the application of sanctions which are beyond the legal scope of classification societies and are, therefore, more appropriately implemented by national administrations.

There is another side of the coin too. Lately the Classification societies have been under severe criticism by the press complaining about the dilution of principles of technical and moral integrity. These complaints seem to come from Underwriters, P&I Clubs and Salvage Associations, the very organisations who have always put their implicit faith and trust in them. Historically, it would be correct to say, that these very organisations brought the classification societies into existence. At one extreme even the concept of classification is now being questioned. Some insurers have expressed doubts that they may cease to rely on vessels class when negotiating
renewal terms. Though there may be some exaggeration in these reports but in a recessionary period now being faced by the shipping industry, lack of orders do create a palpably competitive and commercial atmosphere. In such a climate a society may be tempted to lower its standards in order to get a share of the market.

It has been quoted that Administrations which delegate all its statutory functions to classification society have casualty rate above the world's average unless special measures are taken, which may not necessarily mean a shortcoming on the part of society surveyors. Societies some time have to use the services of non-exclusive surveyors in a port where their own surveyors are not available. There are instances when a master called a wayside port just to get a survey done on his vessel from a non-exclusive surveyor because it was easy to do so without meeting some of the requirements.

It therefore follows that increased dependency on Society just to limit the size of the technical wing of the Administration may not be the best solution at least for the present and while deciding on the degree of delegation all these factors will have to be taken into consideration. Administration in any case will have to monitor the arrangements by way of checks and also develop their national requirements in accordance with established international standards and specific to its domestic needs.
2.4 Recruitment of surveyors & other related matters.

Surveyors are appointed under the provision incorporated in the Merchant Shipping Act and are entrusted with the duty of ensuring that the requirements of the Act and the rules & regulations made thereunder related to various statutory functions are duly complied with. Of the three categories of surveyors viz. Engineer & ship surveyors, Nautical and Ship surveyors only the first two categories are of sea going background and it is intended to deal with these two only. The system and its related problems described largely pertain to India but may as well be applicable to majority of the developing countries.

It has been a general policy that recruitment should be confined to younger people who had obtained their First class certificate of competency in both Steam & Motor. The length and nature of experience and position held on board really did not matter much. This policy appears to be alright for the times when general cargo vessels both steam & Diesel dominated the shipping scene. However with the change in the shipping activities no change in the recruitment policy was effected. With the diversity of ship types and the responsibility involved therein we need to incorporate some overdue changes in the selection policy. Another area which requires reviewing and improvement is the recruitment itself. Presently the selection is carried out either by the Public Service Commission or the Department directly which in due course of time has to be
approved by the Public Service Commission and it is not always that the Service Commission will honour the Department's judgement. The latter process is very lengthy and time consuming and obviously risky as a surveyor having worked for some time with the Department may stand to lose his job when he appears before the Service Commission. The Public Service Commission sits at a certain time when a desirous person may not be available for the interview. At several occasions both these methods of selection have shown their inadequacy. This has contributed significantly towards perpetual shortage of surveyors in the Department. Apart from flaws in the mode of selection and appointment there exist very few avenues of promotion and it is quite common to find surveyors languishing in the same position even after twenty years of service in the Administration which at least is the case in India. This stagnation tends to cause resentment and in some cases frustration resulting in considerable outflow of surveyors from time to time. While a little bit of outflow is natural and may be healthy for the shipping industry in general but a massive outflow not only hampers the Administration's activities but indicates serious flaws in the organisational setup. These problems concerning recruitment, retention in service and promotion avenues require to be reviewed and improvements should be to cover professional, economic and social aspects of the service.
Chapter 3  MARINE POLLUTION & ROLE OF SURVEYORS IN COMBATING IT

It has been recognised that marine pollution constitutes one of the most dangerous forms of pollution because of its effects on the fundamental biological and ecological balances governing life on our planet. The danger is even greater because of the ever-increasing diversity of pollution sources and difficulty of ensuring that all measures adopted to fight it are complied with. Sea is an important source of products & proteins so valuable in a world which is getting overpopulated and therefore holds a great promise for mankind. This is particularly the case in developing countries where population may soon outweigh the resources on land and sea may be left as the last frontier to supplement these resources. In addition, the sea plays a vital role in maintaining the natural ecological balance by supplying a large proportion of oxygen upon which life depends. (§)

The coastal zone which forms a buffer between the land and the open sea is the region most heavily hit by man induced changes. Because of the intense activity there, it is also the region of the most massive public concern in the field of marine pollution. The open seas may also become polluted by ocean surface circulation or bottom transport from polluted coastal zones. While there have been fewer major pollution incidents from ships during

(§) The Pollution Control Policy of the European communities by Stanley P Johnson
the past few years compared with typical levels of 1970s, probably as a result of the implementation & enforcement of national and international regulations, but it is rather unfortunate that little headway has been made in protecting the seas from a major source namely the land based sources of pollution. Such sources are only going to increase because throughout the world there is a move of populations & economic activities to coastal areas and most large cities are ports.

The situation in India as regards pollution of coastal zones is quite grim at least in those areas where there is concentration of industry and population. High concentration of oil slick and tar balls has been found along the coast line of southern India possibly due to the fact that it lies along a major tanker route. Mercury, lead and copper contents are high in the Bombay harbour waters. Large quantities of domestic waste and untreated sewage of almost ten million inhabitants find its way into the sea close by. Added to this is the massive quantities of industrial wastes flowing out into the sea. Although there exists a state pollution board but they are mainly concerned with air pollution and pollution of the inland waters like creeks etc. and their approach towards the pollution of the adjoining sea is rather lackadaisical. Some twenty years ago city of Bombay prided itself in having sea beaches which provided so much recreation to both locals & visitors but these are almost out of bounds
for fear of catching infections and skin diseases. The rivers flowing into the sea are considerably adding to this phenomena by bringing along domestic waste, untreated sewage and industrial wastes from numerous cities and towns in their vicinity all along their course. One such case is the river Ganges which has got so much polluted that the Government has to set up a Central Ganga Authority to undertake the work of depolluting the river by allocating an equivalent of 200 million US Dollars. This is to be used for providing primary sewage treatment facilities for 29 large cities along the bank of the river.

This high priority project has caught peoples attention both at home & abroad. One revealing factor came out to the open while making an initial survey that in 15 out of 29 cities sewage treatment plants already exist but these have been allowed to fall into disuse. This raises some very relevant questions as to why all these plants were allowed to close down and why were not any new plants built to meet the needs of rising populations. This only goes to indicate lack of concern in this matter and also a similar approach towards any action aimed at dealing with it. There is always the excuse of lack of funds but this is a factor that does not just crop up overnight. Any project which relies on plan funds to start with must find its own resources from within if it has to continue after the plan funds are
exhausted. In addition to it there must be total dedication on part of the personnel who are involved in the execution of such projects. They should passionately follow up the progress to see the end results of clean sea environments. Marine consciousness among the common man in India is very poor. Seafarers are the only ones who really care or concern themselves with the sea. It is needed that surveyors are actively associated in the planning and execution stages of these projects in order to generate necessary enthusiasm at all times.

MARPOL 73/78 is a very comprehensive and far reaching convention aimed at protecting seas from pollution caused by ships and is of immediate concern to the Maritime Administrations & its surveyors. Annexe I concerns the pollution of sea by oil from ships and has been effective since October 1983 and is the only one which has come into force from among the five Annexes included in this convention. Annexe II concerns with prevention of pollution from noxious liquid substances carried in bulk on board ships and is expected to enter into force sometimes in 1987. There have been fewer incidents of pollution in the recent past possibly due to implementation of Annexe I regulations. A number of countries have not yet ratified this convention. It is of paramount importance that majority of maritime nations ratify this and take up its implementation and enforcement expeditiously. It is thr-
-ough world wide compliance of these regulations that ship source pollution can be minimised.

Experience in the effective implementation of this convention is still in its infancy and craftsmanship has yet to be gained. However it is clear that reliability of equipment, capability of the operating staff, adequacy of the law enforcement machinery, provision of shore reception facilities and shipboard arrangements for sludge and bilge water tanks are the main criteria which will contribute considerably to the success of the convention. This will need greater co-operation between the equipment manufacturers, ship owners, operating staff and the enforcement personnel. Flag states must follow up the report of the deficiencies received from Port states and experience thus gained must be exchanged in order to bring about the improvements where needed. Greater attention will have to be paid to the installation of the equipment and ensured that it is of approved type and that suitable manuals for its correct operation and maintenance are supplied on board.
Chapter 4  **OFFSHORE ACTIVITIES & THE MARITIME ADMINISTRATION**

Once abundant conventional resources on land appear limited and depleted sea is the last frontier left for search of such resources. Worldwide oil and energy crises has accelerated this process and prompted many nations to search for fossil fuel in the offshore sector. This search has become equally important for developing countries who can not match their oil import bill with their meagre exports. Offshore oil exploration and exploitation activities have assumed proportion of a sizeable industry which is specialised capital intensive, international in character and exposed to more hazards than the rest of the shipping. Seeing the evolution of offshore industry from pile supported drilling platforms to drill ships and semi-submersibles it has become clear that these operations will move further into deeper seas because of the physical difficulties of rigid attachments to the sea floor at those depths and more and more will fall into the category of ships.

The volume of traffic from logistics support craft in the vicinity of offshore industry will increase the probability of oil spills, risk of collisions thus causing major environmental problems. It is clear that any country which wishes to undertake extensive offshore activities must have detailed requirements
in law which govern safe conduct of such operations.

Considering the trend of the industry it can be inferred that a legislation should be developed on the same line as conventional shipping. But in doing so it must be borne in mind that there is a large industrial component involved in these operations. It seems prudent that regulations should aim towards balance between effectiveness and in achieving objectives on the one hand and efficiency in permitting enforcement without inordinate disruption of operations on the other hand. For example regulations that impose severe penalties for risk of oil spill may be substituted for regulations that impose procedural requirements to prevent oil spills. Development of regulations should be such that these provide protection and at the same time do not inhibit investment and development.

In India offshore industry is in its infancy and this is the best stage when regulations for its control should be developed rather than allow it to grow in an unregulated fashion and wait for the day when a serious mishap will raise the need for such action. The incidence of a lethal gas leakage at Union Carbide plant at Bhopal, India in December 1984 resulting in the death of 2000 persons & injuring many more has shook the world and focussed its attention as to who is responsible for ensuring safety aspects. A similar incidence in West Virginia, U.S.A which landed several hundred people in
the hospital has disclosed defects in design, operation and emergency response of these plants. It is now being claimed that it is a failure on part of the national Governments not to have a regulatory system to examine efficiency of emergency response systems & other safety aspects of these plants.

There are two theories governing the nature of offshore activities. One claims that it is an industrial activity taking place in the marine environments and the other describes it as a marine activity taking place for industrial purpose. However in reality and practice it appears to be a judicious mixture of both. In Jackups mariners contribution is maximum only when the rig is in transit and once in place the key element of operation is drilling and some coastal state may decide that a senior industrial personnel may well be incharge of the rig, however the same is not true for other type of rigs as experience of casualities has shown. It is therefore against this dual industrial marine focus & evolving technology that the regulatory system has to be evolved.

The search and exploitation of marine hydrocarbons involves the interaction of three components viz. human, technological and environmental. Any controls developed for this purpose can only be exercised over the human and technological components. Blowouts, explosions, fires
and accidents due to storms still account for major rig losses. Such risks can never be eliminated but can definitely be reduced by better design standards and improved safety procedures. The balance starting with policy can be implemented only with professional personnel of high & specialised competence and this sort of balance will be achieved through balanced judgement more than procedural competence on the part of regulators.

In almost all the developing countries undertaking offshore activities the technical knowhow is foreign & so is the rig, equipment etc. But that does not relieve the coastal state of certain responsibilities. The Royal Commission inquiring into the total loss of a semi-submersible drilling rig "Ocean Ranger" off the coast of New Foundland stated that the requirements of the Classification society and the Flag state do not reduce the Coastal states responsibility to ensure that foreign flag Mobile offshore drilling Units operating within its jurisdiction are seaworthy & that adequate marine standards and practices are applied and maintained.

Having established the need and the principles for the regulation of offshore activities it is now left to be dealt with the practical aspects of the legislation. The installation and devices shall be subject to the laws & regulations concerning the safety of life at sea and in addition where they are capable of floating they shall be
subject to the laws and the regulations concerning conventional shipping. This will call for the registration of the installation, its certification imposing requirements for their construction and survey and seaworthyness. They must conform to the regulations concerning the safety of life at sea, prevention of collision at sea, prevention of operational and other discharges causing pollution of sea etc. An area called the safety zone extending 500 meters around the installation will have to be designated and before a licence for drilling is granted this area must have the clearance from the appropriate authorities regarding conservation policies. Persons in charge of the installation and drilling operations must be designated and must have suitable qualifications to suit their job requirements as per good oil field practice.

An important item which needs a special mention is the emergency procedure manual to be held on board which must detail all the necessary actions to be taken in the event of an emergency. There is an interesting case of fire on board one of the Jack up rigs at Bombay High managed by the state owned Oil & Natural Gas Commission in 1982. There was so much confusion and so little knowledge of what to do, that the rig burnt for days till the services of Red Air from the United States were summoned and the fire was put off. Even the fire fighting was carried out by
foreign vessels on contract. This proved the inadequacy of the existing system. Properly regulated and co-ordinated activity can easily and safely be brought into control in case of an emergency. The legislation must provide for conducting casualty investigations so that lessons could be learnt to avoid reoccurrences.

A large number of support vessels like supply vessels, anchor handling vessels, pipe laying vessels, fire fighting tug tenders etc. will be involved in the offshore activities and though present no special difficulties in matter of control and regulation but nevertheless these will have to be classed as per their unique functions.
Importance of training in any professional discipline needs no elaboration and in the highly sophisticated shipping of today training of various personnel associated with its working has acquired new dimensions if the system is to be operated efficiently. Trial and error method of learning are not only time consuming & expensive but too risky in the present setup. Definite detailed programme of training has to be developed and followed through and these programmes must encompass all aspects of the activities an individual is required to undertake. This need had been felt for quite some time now but it was only recently that it took a concrete shape in the form of adoption of the STCW convention 1978 which entered into force with effect from April, 1984. This convention lays down minimum standards for training and certification for watchkeepers on board ships starting from a rating to the officer in command of the ship or machinery. This convention has provided a base line departure point for the international shipping community in the importance of training since human error has been found a major contributory cause in about eighty percent of shipping casualties. New full time courses will have to be dealt with by the administration to fulfil the requirements of this convention.

Training of surveyors is not a simple process since it
involves interaction of various disciplines and organisations which may not be available in the same country or even the same continent. It may be said that the training starts much before a seafarer joins the department. As a second or chief Engineer he starts to accompany a visiting surveyor on board his ship though such occasions may be far and few. But it is only after a prospective surveyor has joined the administration and has chosen to stay with it that training him becomes an important issue. No country can afford to have a regular institute for this purpose considering the small number of trainees involved and infrastructure needed for such a training Institute.

Before we set out to chalk out a training programme for surveyors we must ascertain what he must know to carry out his functions efficiently. This knowledge could be grouped into three parts. In the first place a surveyor is required to have fundamental and advanced knowledge in design, construction and installation of all the machinery on in addition to sufficient knowledge on Naval Architecture to verify strength, stability & sea keeping qualities of the ship. Process of survey invariably starts from plan approval stage where a lot of calculations will have to be checked and verified and for this good knowledge of Engineering subjects like Mechanics, Strength of materials, Hydrodynamics, Thermodynamics etc. will come very handy.
The second part of the training should consist of knowledge of various day to day functions a surveyor is to carry out. These should include measurement of ships tonnage, crew accommodation, assignment of load line, survey of safety equipment like fire fighting & life saving, grain loading, examinations, casualty investigations etc. along with documentation required in this concern.

The last and the third part should pertain to the understanding of various international conventions in order to follow the objectives of the Articles and the regulations contained therein. This will form the basis on which National regulations will have to be framed and uniformity on a worldwide scale ensured.

System followed in India for training its surveyors

India had an arrangement with the United Kingdom whereby under an aided scheme, surveyors who had completed about five years of service in the department were deputed for a period of two years. During this period theoretical instructions to the level of Extra first class were imparted and after passing this examination practical survey training under the guidance of U.K's department surveyors continued for another year. This arrangement worked fine but in the early 70s it was terminated without finding any alternative for it.
Every country having a sizeable force of surveyors must evolve its own system of training its surveyors preferably within its own infrastructure because it is not only expensive to send persons abroad but it is difficult to release surveyors from an already hardpressed department for a period of two years. A basic programme of training within the department itself is drawn up as follows with an assumption that department is functional in all areas required to be dealt by it.

At Marine districts

1. Tonnage measurement and crew accommodation
   (i) Measurement of ships tonnage for registration, Suez canal, Panama canal and preparation of tonnage certificate.
   (ii) Measurement of ships for assignment of tonnage mark.
   (iii) Scrutiny of drawings relating to crew accommodation, inspection of accommodation, measurement & marking; lighting, ventilation & air-conditioning systems; water supply and sanitary systems.

2. Assignment of loadline
   Measurement of ships for assignment of load line; free-board calculations of typical cases; conditions of assignment, periodical and annual and renewal load line surveys; strength calculation for load line assignment; report on load line forms.
3. Scrutiny of plans of construction of new ships (Passenger & Cargo)

Machinery arrangements; shafting, bilge, ballast & oil fuel arrangements; Compressed air & lub oil systems, Electrical equipment & machines; Boilers & pressure vessels; auxiliary Engines; Pumps, steering systems, emergency systems; Fire protection arrangements; Inclining experiment and stability information; Speed, steering and anchor trials.

4. Hull, machinery and equipment surveys

Survey of hull, machinery and equipment during construction including material tests and trials. Annual surveys of passenger ships; periodical survey of hull, machinery & equipment of cargo ships; Additional requirements for tankers.

5. Safety Equipment

Life boat, life rafts and other life saving appliance, Strength calculations of life boat davits, motor etc; fire protection plans and damage control; fixed fire extinguishing systems and portable extinguishing systems, fire detection & sprinkler systems, fire pumps & extinguishing media, firemen's outfits; light and sound signals; collision regulations, distress signals. Additional requirements for tankers.

6. Grain Loading

Inspection of stowage of grain, grain fittings, shifting boards etc.; examination of grain loading plans and grain stability.
7. Registration of ships.

8. Examination of Engineers and other categories.
   Routine work relating to examinations for certificates of competency, assessment of workshop & sea service; invigilation of examinations; assessment of answer books; oral examination, compilation of results; Report to Chief Examiner of Engineers.

9. Preliminary inquiries and formal investigations
   Procedure for holding inquiries; recording of depositions; report of investigations.

10. Pollution prevention and tanker safety.
   Layout of cargo, segregated ballast and slop tanks; tank filling and venting arrangements; electrical equipment in way of tanks and pump rooms; tank washing systems; fire protection arrangements; oil record books.

11. Miscellaneous inspections and surveys.
   Material testing; verification of testing machines; survey and testing of side scuttles and ship side fittings; electrode manufacture and testing; welding and radiography; anchors and chain cables, testing and survey during manufacture.

12. Special Courses
   1. Practical fire fighting and damage control.
ii. Construction of GRP life boats.

iii. Manufacture of inflatable life rafts.

Time devoted to each item will depend from department to department but it is assumed that a period of about total seventy weeks should more than suffice. Updating in the theoretical subjects may continue side by side as & when need arises.

However, in view of latest international conventions which have entered into force or are about to do so in near future, it is required that short courses on their implementation and enforcement procedures for the sake of uniformity worldwide are also attended. Such courses are of immense benefit for not only these provide opportunity for updation but a lot of practical difficulties are sorted out with participants from various countries.

World Maritime University & the Developing countries.

Developing countries had depended largely on two systems of training their surveyors; one was to depute their surveyors abroad and other was to seek help of expatriate experts. Both these arrangements have serious limitations of their own and besides this, such an arrangement cannot continue for a long time. IMO had been aware of the problem that developing countries have a large to play in international shipping and suffered from acute shortage of well trained maritime personnel including surveyors.
In July 1983 a great leap forward was taken in this direction when The World Maritime University was founded at Malmo, Sweden under the auspices of IMO. The University provides through its faculty of both resident and visiting professors extensive education and training for various aspects of shipping including Maritime Safety administration designed exclusively to deal with surveyors functional requirements.

Apart from this WMU has provided a forum to hold seminars on current topics on shipping when delegates from practically all developing nations actively participate in lectures and discussions. Two such seminars have already been held since the establishment of the university. Another useful purpose being served by the WMU is the conducting of short courses. A course of three weeks duration on the MARPOL 73/78 is already being conducted every year and process is on for preparing various short courses which will be given in various regions of the world under the university's sponsorship. These courses will be of great benefit to both developing and developed countries in achieving uniformity in standards & as a part of updating programme.
Chapter 6  CONCLUSIONS AND RECOMMENDATIONS

In view of what has been put forth in the foregoing chapters it is apparent that future policies concerning the role of Marine Administration and its surveyors will be governed by two factors concurrently. On one hand are the international obligations which are dictated by IMOs Conventions and through their ratification, implementation and subsequent enforcement a country can usefully contribute towards its objectives. On the other hand are the national needs which will have to be defined by keeping in mind the specific requirements of individual states. For suitably discharging these responsibilities India will need in its Maritime Administration a strong technical wing adequately manned with well qualified and trained surveyors.

Towards achievement of this end we will have to increase the number of posts at all Districts particularly the major ones like Bombay, Calcutta & Madras. The process of selection and appointment must be streamlined so as to reduce the period of waiting for a prospective candidate who has opted to serve the shipping community through the Administration. More avenues for promotion must be created in order to avoid stagnation which has been one of the major causes for outflow. The selection policy should aim at recruiting personnel who have considerable and varied experience of various types of ships which should preferably include Oil Tankers, Bulk Carriers, Product & Chemical Carriers and Gas Carriers. Soon after
joining the service, training of surveyor must take priority and this should include updating also since there exists a close relationship between the two. Training should comprise of basic departmental run through described in the earlier chapter followed by an advance level training to a regional or an international Institute like the World Maritime University.

In the field of examinations the department has taken upon itself the responsibility of conducting all examinations including those in the theoretical subjects. This really is not necessary as the assessment in the theoretical engineering subjects can easily be handled by established Training Institutes thus relieving surveyors from this time consuming function which is more of an academic nature. Surveyors should concern about proficiency in practical engineering knowledge of the candidates and time thus gained can be usefully employed for other more relevant functions.

On the marine pollution front India has a big task ahead. It is still in the process of ratification of Annexe I of the MARPOL 73/78 and this must be expedited to exercise, interalia, port state control on the visiting ships. Shore reception facilities must be created and possibilities of substituting these with Floating reception facilities may be explored as these have been found quite cost effective and have the advantage of mobility. This is already being
done in Japan. However there is an overriding need to look into the menace of land based sources of sea pollution. The fact that all these effluents consisting of industrial and municipal wastes finally terminate into the sea should be a matter of concern to those who are closely associated with it, and therefore must have a role in managing it. There are Pollution control Boards & Environment protection Departments in existence but as far as marine pollution is concerned these are ineffective due to the fact that most environment engineers are not familiar with the marine environments, hence fail to appreciate its importance, and marine scientists know little about pollution. It has been proved over the past that existing authorities have even failed to maintain the pre-treatment facilities already provided along nation's major river courses, leave alone building new ones so urgently needed.

We really have not many choices except that either we accept the sea as the ultimate sink to take all that society has to discard or as guardians of the cleanliness of it we do something about it. Answer to the former is emphatic No and to the latter it can be said that it is our moral duty as responsible citizens to initiate some action. It is proposed that an effective and functional marine pollution control cell should operate within the department which must look out for all possible sources of marine pollution. Having identified these sources it should take up in order of
priority to co-ordinate with various authorities who are concerned with such activities. Surveyors must be a part of the bodies who are entrusted with pollution control such as Central Ganga Authority which has been recently formed to initiate process of depolluting nation’s major water course which finally lead into the bay of Bengal. Though we have a contingency planning but it must be tried out in practical exercise also.

In the offshore sector India depends a lot on it due to the fact that there is a limited supply available on land and oil exploration and exploitation will have to be taken far into the seas. In 1963, India spent 75% of its entire export earnings on the import of oil only. Oil wells offshore near Bombay has provided a great boost to its economy and development. For any industry to thrive it is necessary that it should be properly regulated and safeguarded against all possible hazards. Offshore activities are no exception in this respect because it poses danger to human life on the seas and also to marine environments. Presently neither do we have any legislation to regulate these activities nor do we have any allocated strength of surveyors to supervise these units. There exists a strong need to develop a legislation by the administration to cover this sector in order that the expertise within the administration can be deployed beneficially to an industry which has strong marine base.
In the Port State control area, though India is a party to most of the conventions which entitles a party state to exercise such control, but due to inadequate technical infrastructure no such control is being exercised presently. India has several large and small sea ports where a number of foreign flag vessels call regularly. It is in the interest of international shipping that such control is exercised to identify sub-standard ships and make these rectify their defects before letting them proceed to sea.
APPENDIX I

Activities handled by Directorate General of Shipping.

1. Survey, inspection and certification of ships.
2. Port state control of foreign ships.
3. Scrutiny & Approval of various plans of ships under construction.
4. Scrutiny of proposals for acquisition of second hand vessels from abroad.
5. Control of indigenously manufactured marine equipment.
6. Co-ordinating the work of those classification societies delegated with statutory work.
7. Dealing with requests for "Exemptions" from any statutory requirement.
8. Organising & conducting various examinations for grant of certificates of competency to seafarers.
9. Dealing with international conventions relating to marine matters.
10. Conducting inquiries into marine casualties.
11. Dealing with matters pertaining to maritime search and rescue.
12. Dealing with matters pertaining to combat of marine pollution.
13. Dealing with grant of Certificate of service to Naval personnel.
14. Scrutiny of proposals for drydocking & major repairs abroad and purchase of spare parts abroad for national
ships where need for such control exists due to foreign exchange regulations.

15. Administration of matters regarding wrecks.

16. Policy implementation regarding crew matters and manning of ships.

17. To act as Registrar General of ships and seamen.


19. Ensuring safety of fishing vessels and other small vessels.

20. Maintenance of technical records of national ships.

APPENDIX II

National Rules required to be prepared by the Administration

1. Rules for Registration of ships.
5. Regulations for life saving appliances.
6. Regulations for preventing collision at sea.
7. Rules for use of Distress signals.
11. Navigational equipment regulations.
12. Regulations regarding carriage of nautical publications.
15. Crew accommodation rules.
16. Medical scale regulations.
17. Tonnage measurement rules.
18. Load line rules.
19. Rules for the carriage of dangerous goods.
20. Rules for the carriage of deck cargo.
21. Regulations regarding closing of openings in hulls and in water tight bulkheads.
22. Regulations for the carriage of grain.
23. Anchor and chain cable rules.
24. Rules regarding apprenticeship to sea service.
25. Rules for the certification of marine engineers and deck officers.
26. Rules for the certification of skipper, second hands, engine drivers etc. for fishing boats & other small craft.
APPENDIX III

List of activities handled by Administration surveyors

At Headquarters

1. Scrutiny of proposals for the acquisition of second hand vessels for the purpose of assessing their technical suitability.
2. Scrutiny of reports of trials on prototype machinery & other equipment manufactured indigenously for use on board ships for the purpose of its approval.
3. Setting of Question papers and assessment of answer books for the certificate of competency examinations of various grades.
4. Scrutiny of shipowners requirements for purchase of spare parts, execution of major repairs & dry docking of vessels abroad in order to control outflow of foreign exchange.
5. Marine casualty investigations.
6. Scrutiny and approval of various plans, drawings for new buildings.
7. Deal with applications for grant of certificate of service to naval personnel.
8. Advice on any technical matter as and when necessary.

At Marine Districts

1. Deal with matters relating to manning of vessels.
2. Carry out various surveys of ships in accordance with
rule requirements for issuance of appropriate certificates like

a. Passenger ship safety certificate.
b. Cargo ship safety equipment certificate.
c. Cargo ship safety construction certificate.
d. Load line certificate.
e. Tonnage certificate.
f. International oil pollution prevention certificate or letter of compliance thereof.
g. Safety certificate for harbour crafts and ferries under inland vessels act.
h. Exemption certificate where necessary,

3. Scrutiny of drawings, calculations and witnessing from material testing to prototype testing of machinery and any other equipment manufactured indigenousy and put up for approval for use on board ships.


5. Carrying out of preliminary inquiries on marine casualties.
BIBLIOGRAPHY

1. Marine Transport E. GOLD
3. Ratification, Implementation and enforcement of IMO Conventions E. MITROPOULOS
4. Marine Pollution Bulletins several issues
8. Marine Engineers Review, Institute of Marine Engineers, London and Bombay several issues
9. Review of Maritime Transport 1983 UNCTAD.
10. Marine Pollution and its control PAUL L BISHOP
11. Lloyd's List several issues
12. Report of the findings of the Royal Commission inquiring into the loss of the Semi-Submersible rig "OCEAN RANGER" off the coast of New Foundland.
14. The Pollution Control Policy of the European communities Stanley P Johnson