

INTERNATIONAL MOBILE SATELLITE COMMUNICATION SERVICE (INMARSAT)

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Introduction

Communication is the heart of any developmental activity. The later part of the last millennium has seen tremendous changes in technological innovations in various fields. This rapid growth can be attributed to the boom in Information technology, computers and communications. In the communication field, the second half of the last century, seen rapid growth in the land based communication and mobile environment. The more complexity is in mobile environment communication where the needs of ships plying in the oceans, Aircrafts flying across the continents and the vehicles moving on land in remote areas where communications are not available or minimal are to be provided access to the world.

In this context a separate organization was created which was a cooperative and internationally owned to provide worldwide mobile satellite communications for maritime, aeronautical and land mobile users. INMARSAT is the only provider of global mobile satellite communication. A brief overview of the organization and its activities are presented in this article with view to apprise the readers of GIS India about this unique organization.

INMARSAT

INMARSAT is the abbreviation for International Mobile Satellite Communication Service, which is an international cooperative venture with 81 countries as members of this organization. The aim of the organization was to provide global mobile communication for commercial, and distress and safety applications at sea, air and on land. It has come in to existence in 1979. The organization comprises of three bodies and these are:

- a) **The Assembly:** Assembly is composed of representatives of member countries; each of has one vote and meets once in two years to review the activities and objectives of INMARSAT to recommend to the council.
- b) **The Council:** The council functions like the board of a company. It consists of the 18 signatories with largest investment shares, plus four others selected by the Assembly to ensure a just geographical spread and due regard for the developing countries. The council meets at least three times a year. Each member has a voting power equal to its investment share. The council oversees the activities of the Directorate.
- c) **The Directorate:** It is the permanent staff of Inmarsat comprising about 450 people of 50 different nationalities working under the Director General. The Directorate carries out day to day tasks of Inmarsat.

The member countries, each of which has an investment share based on its actual usage of the system finances the organization. The organization headquarter is in London.

INMARSAT SATELLITES

The Inmarsat system consists of eight satellites in geostationary orbit. Four of the satellites are provided with the latest Inmarsat-3 technology, giving overlapping operational coverage for every square inch of the Globe (apart from the extreme polar areas). Each Inmarsat-3 satellite also operates a number of spot beam "cells". This enables the satellites to concentrate power in areas of high demand and to provide services to smaller, simpler terminals. Mobile users communicate

directly via Inmarsat satellites and airtime service is available around the world through network of service providers who are leading giants in telecommunications business.

Services Offered by Inmarsat:

Services supported by Inmarsat satellite network include the following:

- a) Direct dial phone
- b) Telex, Fax
- c) Electronic mail
- d) Data communications for Maritime applications
- e) Flight deck voice and data
- f) Automatic position and status reporting
- g) Direct dial passenger telephone
- h) Fax and data communication for Aircraft
- i) In vehicle and transportable phone
- j) Fleet management for land transport
- k) Emergency communications for disaster reporting by media
- l) Systems for temporary and or fixed operations in inaccessible areas, which are beyond reach of normal communications.

Terminals and Services

Inmarsat offers several different mobile communications systems designed to provide users with a wide variety of terminal and services. Inmarsat-phone, Inmarsat-A, Inmarsat-B and Inmarsat-C are the terminals.

Inmarsat Phone: It is a digital phone, fax and data system, which can work with compact terminals. Systems for mounting on vehicles are also available. The charges are about US\$3 per minute.

Inmarsat-A: Most of the current users access the Inmarsat system through these terminals. Maritime versions are having separate model for mounting on the ship. These are also available in portable form. This can support high quality direct – dial phone.

Inmarsat-B: It is improved version of Inmarsat-A and supports modern digital communication technologies and is cheaper than the earlier one.

Inmarsat-C: This system provides data messaging communications through small, lightweight terminals. These come in fixed, mobile, transportable, maritime and aeronautical form, with omni directional antennas. The cost of this service is cheaper than the earlier ones. This system supports two-way –store-and-forward messaging, text and data reporting communications at a data rate of 600bits/sec.

The Inmarsat services are broadly classified in to six types. They are:

- a) Global Mobile Office
- b) Aeronautical Communications
- c) Media and Emergency
- d) Regional Development and Support programmes
- e) Energy and Development
- f) Inmarsat Rural Phone

A brief description of these services extracted from the brochures is given below:

Global Mobile Office

The mobile users can use different types of equipment for accessing information and people. A compact Inmarsat satellite phone with the combination of a notebook PC or a palmtop computer, gives plug-and-play, Microsoft access to fax, e-mail, company's management information systems as well as direct-dial telephone would increase the productivity of mobile professionals. In addition, Inmarsat systems include pocket size message receivers to multi channel hubs with video conferencing capabilities. To summarise, an office executive can carry his office with him wherever he goes.

Aeronautical Communications

Inmarsat offers a comprehensive range of satellite communications services specifically designed to meet the growing needs of world's aviation industry. Inmarsat in collaboration with International Aviation Organisation (ICAO), the International Air traffic Association (ITA) and other relevant bodies pioneered the field of aeronautical satellite communications. It is the only satellite system that conforms to ICAO standards for worldwide coverage. The aeronautical communications are divided in to long haul and short haul coverage. In the long haul coverage, the aircrafts operate beyond the range of terrestrial radio systems and need reliable and interference free quality communications, which can be achieved by Inmarsat satellites only. In the short haul coverage, these systems provide coverage where ground based aeronautical communications is of poor quality.

Media and Emergency

Inmarsat is an essential tool for almost all of the World's major television, broadcast and print media. Using equipment that can be hand carried or easily shipped as baggage, Inmarsat gives correspondents the ability to be first on the scene with live voice, text, pictures or video reports. The reporters can constantly keep in touch with their offices to update the news around the world.

Fixed communications systems are vulnerable and are often the first casualties in disasters. But the communications are vital in such situations to save the lives, protect the properties and for the coordination of post disaster management operations. Inmarsat systems support satellite communications equipment small enough to be easily carried by hand or transported on sort of vehicle. Further these systems can be deployed in minutes with the assurance that they will operate anywhere. This facilitates the administrators to assess the damage and coordinate the relief operations and mobilize the resources from far-flung areas.

Regional Development and Support Programmes

In 1992, Inmarsat established a Regional Programmes Department to manage the Inmarsat Programme of Co-operation to support emerging economies through provision of pilot projects, training and assignee programmes. Inmarsat works with its local partners to identify and develop new business opportunities, as well as co-operating with regulators to simplify and reduce the local barriers to using mobile satellites.

In addition, Inmarsat in cooperation with Inmarsat investors, regulators, national telecommunications operators and equipment manufacturers facilitates pilot projects to demonstrate the commercial and technical viability of Inmarsat based communications solutions in emerging economies.

Inmarsat also provides training courses for major telecommunications service providers and government agencies to understand Inmarsat mobile satellite communications systems and how they can be applied in their countries. These training modules are available in six languages.

Energy and Development

Global demand for energy and raw material grows at rapid rate due to increasing population and depleting natural resources. Exploration programmes for these natural resources are spreading at a faster rate. Competitive pressure calls for efficient management and project control, minimum maintenance downtime and centralized data analysis. Environmental impact, of these activities demand, reliable round-the clock monitoring and information management. Most of the energy development projects take place in areas where there is no communications system. These activities require efficient communications system, which can be set up through Inmarsat satellite communications system.

Inmarsat Rural Phone

The following statistics give a grim picture of the communication access to the people of the planet earth:

- a) Around 3 billion people in the world have no access to a phone.
- b) 67% of world's telephones serve 14% of the world's population.
- c) Approximately 63% of the world's countries have telecom networks, which cover urban areas only.
- d) World's teledensity - excluding developed countries is only 4.5%

These facts indicate the challenges and opportunities to the telecommunication industry. The rural areas need the basic telecommunications and this is more acute in the developing countries. Conventional terrestrial systems would be costly in setting and subsequent maintenance due to small potential users in these areas. For this reason, Inmarsat 's satellite communication network is the ideal platform to build cost effective and reliable links between remote and rural areas and country's urban centers and beyond to the outside world.

In India, Department of Telecommunications (DOT) in collaboration with VSNL and Inmarsat is setting up rural phones in the remote and inaccessible areas. VSNL commenced Inmarsat Mini-M services in May 1997 and is the sole Inmarsat service provider in India.

Inmarsat will be playing a significant role in providing updates of Electronic navigation Chart (ENC) for shipboard Electronic Chart Display and Information Systems (ECDIS) for the use of navigator on board ship for safe navigation. It is expected TELEDESIC is to be made operational by 2003 and the Inmarsat satellite Inmarsat-b is already operational and is providing facility for data transmission at 64kilobit per second and cost US\$10 per minute.

Conclusion

The Inmarsat in the coming years would play a dominant role in meeting the demanding needs of the people on the planet earth by providing services to cross section of users around the world. The developing countries would greatly benefit from the services provided by this agency in improving their economies, as the key to success of any development is the Communication.

References

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- iii) About INMARSAT by Gavin Trevitt, Business communication manager, INMARSAT
- iv) Inmarsat-C by Derek Tam, manager customer care center, Inmarsat