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Gist of Yojana Magazine

WHAT IS DIRECT TO HOME SERVICE?

What Is DTH Service?

Direct To Home (DTH) service is a comparatively recent entrant as compared to cable transmission. It has certain technical advantages over cable operations. DTH is an addressable system and covers the entire country. In DTH service a large number of television channels are digitally compressed, encrypted and beamed from very high power satellites. The programmes transmitted through DTH can be directly received at homes by installing small dish antennas at convenient locations in the buildings. DTH transmission service does not require any commercial intermediary, since an individual user is directly served by the DTH operator. DTH Service refers to distribution of multi-channel programmes in Ku Band by using a satellite system, for providing TV signals direct to subscribers' premises. DTH provides subscribers the advantage of geographical mobility meaning thereby that once a customer purchases DTH hardware, he/she can continue to use the same unit anywhere in India. The idea behind DTH is to benefit the television viewer because it gives the individual dish at the home.

How DTH system works?

The satellites used in DTH are situated at around 35,700 kilometres above the earth in a geosynchronous orbit. Signals transmitted from the broadcast stations on the earth are received by these satellites and in turn re-broadcasted to the earth. The dish antenna fixed at the viewer's house receives the signal from the satellite and transmits it to the receiver placed inside the house. DTH service providers with such specifications as laid down by the Government from time to time. With passage of time, different technologies and standards have evolved for signal compression and transmission.

Till Aug 2007, there were about 3.2 million DTH subscribers with two pay DTH operators. This number grew to about 11.05 million subscribers with five pay DTH operators in Dec 2008 which has in September 2010 reached a figure of about 26.4 million subscribers with six pay DTH operators. The total number of DTH households is estimated to be around 26 million in the first half of 2010.

What are the forms of DTH technology?

Since different DTH players have entered the market at different point of times, they have brought–in with them the contemporary advanced technology in the DTH market in India. The technology in DTH is manifested in the following three forms:

(i) Compression technology: The digital video/audio signals are compressed before transmission. This helps in saving the satellite transponder bandwidth as well as storage of data. The signals are de-compressed at the receiver end. There are different video/audio compression standards that have been widely adopted by satellite TV operators. The earlier entrants used MPEG 2 technology while the later entrants brought with them a more efficient version i.e. MPEG 4.

(ii) Encryption Technology: In a scenario where TV content is priced and is made available for viewing to subscribers on subscription basis the role of efficient and reliable encryption/

Conditional Access (CA) system is important. In this component, the bit stream is decrypted on the basis of keys made available by the Conditional Access system. It protects unauthorized viewing of the TV content. There are a number of CA service providers in the world that provide conditional access solutions on the basis of proprietary technology or algorithm. Prominent among them are NDS, Conax, Irdeto, Nagravision etc.

(iii) Transmission Technology: The role of a transmission system is to ensure efficient and reliable transfer of data stream over the RF channel. In case of DTH, the RF channel comprises of radio link between earth station of a DTH operator to the satellite and from the satellite to the mini dish at the subscriber premises. The earlier entrants used DVB S technology while the later entrants brought with them a more efficient version i.e. DVB S2.

The technology combinations used by six pay DTH operators are as follows:

What are the benefits of the service?

DTH being a digital addressable system offers good picture quality, enhanced value added services, transparency in the system enabling its audit and monitoring thereby reducing litigations between the broadcaster and DTH operator resulting in better services to the consumers leading to structured growth of the sector. Thus DTH has given a stiff competition to the analogue cable TV sector which is also going digital eventually. From a scenario where 100% of the cable & satellite population was dependent on analogue cable services, DTH today commands more than 20 percent market share.

What is Prasar Bharati (Doordarshan) DTH Service?

Doordarshan is the world's largest terrestrial broadcaster with over 1400 terrestrial TV transmitters located throughout the country covering approximately. 90 percent of India's geographical area. *Satelite & coverage*- Doordarshan is using New Skies Satellite INSAT4B Ku-band high power satellite with a footprint covering India and neighbouring region and located at 95° E. *Doordarshan's DTH Bouquet*- Doordarshan's DTH platform is known as DD Direct Plus. This bouquet comprise of following TV channels. Initially, it provide 33 channels and now added 26 more channels, Total 59 TV and 23 Radio Channels services are running on Doordarshan DD Direct Plus. *Ground Network*-Doordarshan has deployed 10,000 DTH terminals comprising 120 cms, 90 cms and 60 cm antenna and associated hardware and also procured 8000 terminals of 60 cm and 90 cm size.

ALL ABOUT GENETICALLY MODIFIED FOODS

What are genetically modified (GM) Foods?-

Genetically Modified Foods are foods derived from genetically modified organisms. Genetically modified organisms (GMOs) are those whose genetic material (DNA) has been altered through techniques of "recombinant DNA technology" or "genetic engineering" to develop certain desired traits like pest resistance, higher nutritional value, longer shelf life etc. In the process selected individual genes which have been identified to be responsible for a certain desired trait may be transferred from one organism into another, even between nonrelated species. Alternatively, there can also be deletion of identified genes from the genetic material of an organism. Some food varieties whose genetically modified versions have been developed in the world include tomato, soyabean, corn, cotton, brinjal, rice, canola, sugar beet etc.

Why are GM Foods grown?

GM Foods are developed and grown due to certain perceived benefits for producers or consumers or both. One prime objective in this regard is to enhance crop protection by developing breeds that are resistant to insects, viruses, herbicides, extreme cold, salinity, poor soil etc. For example in order to develop pest resistance, the gene for toxin production from the bacterium Bacillus thuringiensis (BT) is

being introduced into the genetic material of certain plants like corn. This toxin is currently used as a conventional insecticide in agriculture. The idea is that if the plant itself starts producing the toxin and develops an inbuilt resistance to pests this will reduce the external use of insecticides, thereby reducing the adverse effects associated with such use. Similarly virus resistance is achieved through the introduction of a gene from certain viruses which cause disease in plants. Plant biologists are working to develop breeds that have genetically engineered resistance to various plant diseases. Herbicide resistant varieties are also being developed (eg soyabean) so that the external application of herbicides can be reduced. An antifreeze gene from cold water fish has been introduced into plants such as tobacco and potato to develop genetically modified varieties that can tolerate cold temperatures and unexpected frost. Another objective is to develop breeds that have higher nutritive values than traditionally grown varieties of the same food. For example, a variety of rice has been developed with high Vitamin A content.

Certain foods are known to cause allergies. Genetically modified, non allergy inducing varieties of such foods are being produced. Besides these, GM foods are being developed to grow faster than their traditional counterparts, greater productivity and having larger shelf lives. All the above advantages of GM foods are considered very important to ensure food security for the growing world population.

What are largely the concerns regarding GM Foods?

The concerns regarding GM Foods are with regard to their influence on the environment, human health and economy. On the health front the three main issues are relating to allergenicity or the possible tendencies to provoke allergic reaction, gene transfer or the transfer of genes into the human body and its consequences and outcrossing or the mixing of GM variety of a crop with the conventional variety. In case of the first two concerns although rigorous safety testing is carried out before a GM food is declared safe, there is apprehension regarding the long term effects of its consumption. Outcrossing can sometimes be a problem as was shown when traces of a maize type which was only approved for feed use appeared in maize products for human consumption in the United States of America. However, several countries have adopted strategies to reduce mixing, including a clear separation of the fields within which GM crops and conventional crops are grown.

On the environment front some issues of concern include the capability of the GM Foods to potentially introduce the engineered genes into wild populations; detrimental effect on beneficial insects or a faster induction of resistant insects; the persistence of the gene after the GMO has been harvested; the stability of the gene; the reduction in the spectrum of other plants including loss of biodiversity. On the economic front there are issues with regard to patenting of GM varieties. There are concerns that patenting of new plant varieties will raise the price of their seeds, thus hitting the small farmers. The apprehensions about fighting possible patent infringement through introduction of suicide genes into plants which give rise to sterile seeds will further mean that the farmer has to purchase seeds every year.

How are GM foods regulated in India?

In India, the regulation of all activities related to GM and their products is governed by "*Rules for the Manufacture/Use/Import/ Export and Storage of Hazardous Microorganisms, Genetically Engineered Organisms or Cells, 1989* under the provisions of the *Environment (Protection) Act, 1986* through the Ministry of Environment and Forests (MoEF). The *Rules, 1989* are primarily implemented by MoEF and the Department of Biotechnology (DBT), Ministry of Science and Technology through six competent authorities: the Recombinant DNA Advisory Committee (RDAC); the Review Committee on Genetic Manipulation (RCGM); the Genetic Engineering Approval Committee (GEAC); Institutional Biosafety Committees (IBSC); State Biosafety Coordination Committees (SBCC), and District Level Committees (DLC). The competent authorities under the Rules 1989 have framed guidelines, protocols, procedures for evaluating biosafety, toxicity, allergenicity, field trials, food and

feed safety, production processes, large scale use of genetically modified organism (GMO's) and products thereof and their release into the environment. In addition the Food Safety Standards Authority of India, which came into existence following the enactment of the "Food Safety and Standards Act, 2006" has been charged with consolidating various food laws and establishing a single regulatory agency in place of multiple regulatory agencies. This includes replacing India's most important food regulation, the Prevention of Food Adulteration Rules of 1955, with the proposed Food Safety and Standards Rules and Regulations 2009. Broadly, the agencies entrusted with various responsibilities are as follows:

How prevalent are GM crops in India?

Bt Cotton is so far the only GM crop grown commercially in India. With the moratorium on Bt Brinjal, there are so far no GM foods grown commercially in India. However, since GM crops have the potential to increase farm yields, reduce farm costs and thereby increase farm incomes, the government has been very supportive of the efforts to develop transgenic crops. Many transgenic crops are currently being developed and tested at various public and private institutions. Indian Council of Agriculture Research (ICAR) is implementing a mega Network Project on Transgenics in Crops (NPTC) to initiate and strengthen the Research and Development (R&D) efforts on functional genomics and transgenic crops. In view of concerns regarding the risk to human health and the environment from the use of GM crops, Government has adopted a case by case approach to assess safety concerns in respect of each transgenic event. All issues relating to bio-safety, environmental safety, etc., have been entrusted to a strict regulatory regime under the provisions of the Environment (Protection) Act, 1986 as mentioned above. Genetically modified (GM) crops are already being planted in 25 countries, including 15 developed and 10 industrialised countries as per ISAAA, 2008. What are the international regulatory systems in place with regard to GM foods/crops? No specific international regulatory systems are currently in place. However, several international organizations are involved in developing protocols for GMOs.

The Codex Alimentarius Commission (Codex) is the joint FAO/WHO body responsible for compiling the standards, codes of practice, guidelines and recommendations that constitute the Codex Alimentarius-the international food code. Codex principles do not have a binding effect on national legislation, but are referred to specifically in the Sanitary and Phytosanitary Agreement of the World Trade Organization (SPS Agreement), and can be used as a reference in case of trade disputes. The premise of these principles dictates a premarket assessment, performed on a case-by-case basis and including an evaluation of both direct effects (from the inserted gene) and unintended effects (that may arise as a consequence of insertion of the new gene). The Cartagena Protocol on Biosafety (CPB), an environmental treaty legally binding for its Parties, regulates transboundary movements of living modified organisms (LMOs) with the objective of protecting biological diversity of a country from the potential risks posed by living modified organisms. GM foods are within the scope of the Protocol only if they contain LMOs that are capable of transferring or replicating genetic material. The cornerstone of the CPB is a requirement that exporters seek consent from importers before the first shipment of LMOs intended for release into the environment. India has also ratified the Protocol.

INTEGRATED COASTAL ZONE MANAGEMENT

What is Integrated Coastal Zone Management?

The Integrated Coastal Management Programme of the Ministry of Environment and Forests aims to safeguard and strengthen the ecological security of coastal areas and the livelihood security of coastal communities. The programme will give attention to both the landward and seaward sides of the coast.

Why was the programme necessary ?

Our coastal ecology is under a lot of pressure

due to various reasons. There is pollution, discharge from ships, dredging, sand mining, excessive fishing etc. In addition there is the impending effect of climate change. All this has made our coastal ecology fragile, putting at risk all communities that survive on it.

The Ministry of Environment and Forests issued the Coastal Regulation Zone (CRZ) Notification on 19.2.1991 under the Environment (Protection) Act, 1986 to provide comprehensive measures for the protection of our coastal environment. However, over the last two decades the CRZ Notification, 1991 has been amended almost about 25 times. The new notification was issued after taking into consideration the requests made by various State Governments, Central Ministries and NGOs.

The tsunami of December 26,2004 was a wake up call. The coping capacity of our coastal communities needed to be strengthened to withstand the impact of such severe natural calamities.

What are the objectives of the Coastal Regulation Zone Notification, 2011.?

- To ensure livelihood security to the fishing communities and other local communities living in the coastal areas.
- To conserve and protect coastal stretches, and
- To promote development in a sustainable manner based on scientific principles, taking into account the dangers of natural hazards in the coastal areas and sea level rise due to global warming.

How are coastal zones classified?

In the 1991 Notification the CRZ area was classified as CRZ-I (ecological sensitive), CRZ-II (built-up area), CRZ-III (rural area), and CRZ-IV (water area). In the 2011 Notification the above classification is retained. The only change is that the CRZ-IV, includes the water areas up to the territorial waters and the tidal-influenced water bodies. For the very first time, a separate draft Island Protection Zone Notification has been issued for protection of the islands of Andaman & Nicobar and Lakshadweep under Environment (Protection) Act, 1986.

What are the provisions to benefit the fisher-folk communities?

- Water area up to 12 nautical miles and the tidal influenced water bodies have been included under the Coastal Regulation Zone areas in order to-control the discharge of untreated sewage, effluents and the disposal of solid wastes as such activities endanger the fish and their ecosystem, conserve and protect habitats in the marine area such as corals and coral reefs and associated biodiversity, marine sanctuaries and biosphere reserves, sea grass beds etc. which act as spawning, nursery and rearing grounds for fish and fisheries, regulate activities in the marine and coastal waters such as dredging, sand mining.
- Discharge of waste from ships, construction like breakwaters, etc. including reclamation which have serious impacts on fishing and allied activities, enable studies of the coastal and marine waters with regard to the impact of climate change and the occurrence of disasters which have serious impacts on the life and property of the fisher folk communities
- Development of manmade foreshore activities shall be regulated after identifying and demarcating the coast as falling in the high eroding category, the medium eroding category or the stable sites category.
- While preparing the Coastal Zone Management Plans the infrastructure essential for fishing communities are to be clearly demarcated and fishing zones in the water bodies and the fish breeding areas shall also be clearly marked
- The Notification requires the Coastal Zone Management Authorities to invite comments

on the draft Coastal Zone Management Plan from stakeholders. It also allows infrastructural facilities for the local fishing communities to be constructed in the CRZ-III area.

- Reconstruction, repair works of dwelling units of local communities including fisheries in accordance with local Town and Country Planning Regulations has been made permissible.

What is the Jurisdiction of the Coastal Regulation Zone?

The CRZ Notification, 2011 includes not only the area covered under CRZ Notification, 1991, i.e. 500 mts from the high tide line on the landward side including the intertidal area on the sea front and 100 mts or width of the creek whichever is less from the high tide line on the landward side along the tidal influenced water bodies. It also includes the land area which falls in the hazard zone beyond 500 mts and also the aquatic area up to 123 nautical miles in the territorial waters and the tidal influenced water bodies are also included.

DRAFT NATIONAL TELECOM POLICY, 2011

What is the necessity of a new telecom policy?

Earlier telecom policy was announced in 1999 at a time when India had just entered into the area of mobile telephony and the total number of mobile phone users in India was limited to only around 20 lakhs. Over the decade, the telecom sector in India has undergone sea change particularly after incoming calls were made free as India emerged as the fastest growing mobile market in the world. Today there are around 90 crore mobile phone connections in India. Future of mobile telephony market in India is still promising and expanding every day. This necessitated introduction of a new set of guidelines with pragmatic vision and scope.

What are the objectives of National Telecom Policy (NPT) 2011?

The primary objective of NTP-2011 is maximizing public good by making available affordable, reliable and secure telecommunication and broadband services across the entire country. The main thrust of the Policy is on the multiplier effect and transformational impact of such services on the overall economy. It recognizes the role of such services in furthering the national development agenda while enhancing equity and inclusiveness. Direct revenue generation would continue to remain a secondary objective. NTP-2011 also recognizes the predominant role of the private sector in this field and the consequent policy imperative of ensuring continued viability of service providers in a competitive environment. Pursuant to NTP-2011, these principles would guide decisions needed to strike a balance between the interests of users/ consumers, service providers and government revenue. Point wise we can put these objective in following concrete terms: The National Telecom Policy-2011 envisions providing the people of India, secure, reliable, affordable and high quality converged telecommunication services anytime, anywhere**.** Some of the important objectives of the policy include:

i. Increase in rural tele density from the current level of around 35 to 60 by the year 2017 and 100 by the year 2020.
ii. Provide affordable and reliable broadband on demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of at least 100 Mbps on demand.
iii. Provide high speed and high quality broadband access to all village panchayats through optical fibre by the year 2014 and progressively to all villages and habitations.
iv. Promote indigenous R&D, innovation and manufacturing that serve domestic and foreign markets.
v. Promote the domestic production of telecommunication equipment to meet 80 percent Indian telecom sector demand through

domestic manufacturing with a value addition of 65 percent by the year 2020.

vi. Provide preferential market access for domestically manufactured telecommunication products including mobile devices, SIM cards with enhanced features etc. with special emphasis on Indian products for which IPRs reside in India to address strategic and security concerns of the Government, consistent with international commitments.

vii. Strive to create *One Nation - One License* across services and service areas.

viii. Achieve *One Nation - Full Mobile Number Portability* and work towards *One Nation - Free Roaming*.

ix. To *reposition the mobile phone* from a mere communication device *to an instrument of empowerment* that combines communication with proof of identity, fully secure financial and other transaction capability, multi-lingual services and a whole range of other capabilities that ride on them and transcend the literacy barrier.

x. Deliver seamless ICT, multimedia and broadcasting services on *converged networks* for enhanced service delivery to provide superior experience to customers.

xi. Optimize transmission of services to consumers irrespective of their devices or locations by *Fixed-Mobile Convergence* thus making available valuable spectrum for other wireless services.

xii. Facilitate consolidation in the converged telecom service sector while ensuring sufficient competition.

xiii. Mandate an ecosystem to ensure setting up of a *common platform for interconnection* of various networks for providing non-exclusive and non-discriminatory access.

xiv. Promote an ecosystem for participants in VAS industry value chain to make India a global hub for Value Added Services (VAS).

xv. Ensure adequate availability of spectrum and its allocation in a transparent manner through market related processes. Make available additional 300 MHz spectrum for International Mobile Telephony (IMT) services by the year 2017 and another 200 MHz by 2020.

xvi. Strengthen the framework to address the environmental and health related concerns pertaining to the telecom sector.

xvii. Encourage adoption of green policy in telecom and incentivize use of renewable resources for sustainability.

xviii. Protect consumer interest by promoting informed consent, transparency and accountability in quality of service, tariff, usage etc.

xix. Encourage recognition and creation of synergistic alliance of public sector and other organisations of Department of Telecommunications (DoT) through appropriate policy interventions.

xx. Achieve substantial transition to new Internet Protocol (IPv 6) in the country in a phased and time bound manner by 2020 and encourage an ecosystem for provision of a significantly large bouquet of services on IP platform.

xxi. Put in place a web based, real time e-governance solution to support online submission of applications for all services of DoT and issuance of licences and clearances from DoT.

How will it benefit mobile users?

Users will not have to pay roaming charges and mobile number portability will be available nationwide. The policy envisages a 'one nation-one licence' regime. Companies will not have to apply for separate licences in every circle/service area and users will not have to pay roaming charges. A single licence will do across all the 22 service areas in the country. The policy will allow mobile operators to share, pool and trade spectrum. Spectrum will in fact, be delinked from licences in future and priced at

market value. In the existing policy, start up spectrum of 4.4 MHz is bundled with the licence.

How will it Affect Service Providers and Operators?

The department of telecommunications (DoT) will unveil an exit policy for operators. It has been referred to the Telecom Regulatory Authority of India (TRAI) for formulation. That should aid consolidation in the industry, which has 12.13 players in each circle. DoT will also seek TRAI recommendations on the new licensing framework and migration of licences. An additional 300 MHz of spectrum will be made available by 2017 and another 200 MHz by 2020. The telecom section will get infrastructure status under the new policy. The Communication and Information Technology Ministry will ensure adequate availability of spectrum and its allocation in transparent manner through market-related processes. It will prepare a road map for the availability of additional spectrum every five years. DoT had started work on the new telecom policy-2011 from January this year in the wake of the 2G spectrum allocation controversy. It is feared that operators battling intense competition and low tariffs will be hit by the end of roaming charges. According to industry estimates, roaming charges account for eight percent of telecom players' revenues

What are the key features of the draft NTP 2011?

The policy unveiled against the backdrop of the series of scams involving politicians as well as top executives of the telecom companies, is set to focus on transparency and quick decision in the sector. One of the key features of the NTP-2011 could be the strengthening of the grievance redress mechanism for telephone users by giving ample power to the Telecom Regulatory Authority of India (TRAI).

A separate cell is likely to be created under the TRAI where subscribers could file complaints if they are not happy with the response of customer care cells of their operators. The TRAI will be empowered to penalise guilty operators for not addressing subscriber complaints. Currently, the Department of Telecom (DoT) has the authority of imposing penalties on the telecom, while TRAI can give its recommendations on penalties or termination of licence, and the final decision rests with the DoT. Aimed at cleaning up and rejuvenating the sector, the new policy is expected to help attract more foreign investors to the country and plug the digital divide. The new policy will also propose to give infrastructure tag to telecom sector - which would entail tax concessions - so that more investment flows in.

CREDIT RATING

What is Credit Rating?

A **credit rating** evaluates the credit worthiness of an issuer of specific types of debt, specifically, debt issued by a business enterprise such as a corporation or a government. It is an evaluation made by a credit rating agency of the debt issuers likelihood of default. Credit ratings are determined by credit ratings agencies. The credit rating represents the credit rating agency's evaluation of qualitative and quantitative information for a company or government; including non-public information obtained by the credit rating agencies analysts. Credit ratings are not based on mathematical formulas. Instead, credit rating agencies use their judgment and experience in determining what public and private information should be considered in giving a rating to a particular company or government. The credit rating is used by individuals and entities that purchase the bonds issued by companies and governments to determine the likelihood that the government will pay its bond obligations.

Are Credit Ratings and Credit Scores the same?

Credit ratings are often confused with credit scores. Credit scores are the output of mathematical algorithms that assign numerical values to information in an individual's credit report. The credit report contains information regarding the financial history and current assets and liabilities of an individual. A bank or credit card company will

use the credit score to estimate the probability that the individual will pay back loan or will pay back charges on a credit card. However, in recent years, credit scores have also been used to adjust insurance premiums, determine employment eligibility, as a factor considered in obtaining security clearances and establish the amount of a utility or leasing deposit.

A poor credit rating indicates a credit rating agency's opinion that the company or government has a high risk of defaulting, based on the agency's analysis of the entity's history and analysis of long term economic prospects. A poor credit score indicates that in the past, other individuals with similar credit reports defaulted on loans at a high rate. The credit score does not take into account future prospects or changed circumstances. For example, if an individual received a credit score of 400 on Monday because he had a history of defaults, and then won the lottery on Tuesday, his credit score would remain 400 on Tuesday because his credit report does not take into account his improved future prospects. An individual's credit score, along with his credit report, affects his or her ability to borrow money through financial institutions such as banks.

The factors that may influence a person's credit score are:

- ability to pay a loan
- interest
- amount of credit used
- saving patterns
- spending patterns
- debt

What are Different Types of Credit Ratings?

1. Corporate Credit Rating

The credit rating of a corporation is a financial indicator to potential investors of debt securities such as bonds. Credit rating is usually of a financial instrument such as a bond, rather than the whole corporation. These are assigned by credit rating agencies and have letter designations such as A, B, C.

2. Sovereign Credit Rating

A **sovereign credit rating** is the credit rating of a sovereign entity, i.e., a national government. The sovereign credit rating indicates the risk level of the investing environment of a country and is used by investors looking to invest abroad. It takes political risk into account.

Short-term Rating

A short-term rating is a probability factor of an individual going into default within a year. This is in contrast to long-term rating which is evaluated over a long timeframe. In the past institutional investors preferred to consider long-term ratings. Nowadays, short-term ratings are commonly used. First, the Basel II agreement requires banks to report their one-year probability if they applied internal-ratings-based approach for capital requirements. Second, many institutional investors can easily manage their credit/bond portfolios with derivatives on monthly or quarterly basis. Therefore, some rating agencies simply report short-term ratings.

What is the difference between Credit Bureaus & Credit Rating Agencies?

Credit bureaus and credit rating agencies

Credit scores for individuals are assigned by credit bureaus (US; UK: credit reference agencies). Credit ratings for corporations and sovereign debt are assigned by credit rating agencies. In India, commercial credit rating agencies include CRISIL, CARE, ICRA and Brickwork Ratings. The credit bureaus for individuals in India are Credit Information Bureau (India) Limited (CIBIL) and Credit Registration Office (CRO). In the United States, the main credit bureaus are Experian, Equifax, and TransUnion. A relatively new credit bureau in the US is Innovis. In the United Kingdom, the main credit reference agencies for individuals are Experian, Equifax, and Callcredit. There is no universal credit score as such, rather each individual lender credit scores based on its own wish-list of a perfect customer.

The largest credit rating agencies (which tend to operate worldwide) are Dun & Bradstreet, Moody's, Standard & Poor's and Fitch Ratings

A Credit rating agency (**CRA**) is a company that assigns credit ratings for issuers of certain types of debt obligations as well as the debt instruments themselves. In some cases, the servicers of the underlying debt are also given ratings.

In most cases, the issuers of securities are companies, special purpose entities, state and local governments, non-profit organizations, or national governments issuing debt-like securities (i.e., bonds) that can be traded on a secondary market. A credit rating for an issuer takes into consideration the issuer's credit worthiness and affects the interest rate applied to the particular security being issued.

What are the uses of ratings ?

Credit ratings are used by investors, issuers, investment banks, broker-dealers, and governments. For investors, credit rating agencies increase the range of investment alternatives and provide independent, easy-to-use measurements of relative credit risk; this generally increases the efficiency of the market, lowering costs for both borrowers and lenders. This in turn increases the total supply of risk capital in the economy, leading to stronger growth. It also opens the capital markets to categories of borrower who might otherwise be shut out altogether: small governments, startup companies, hospitals, and universities.

PROTECTING HUMAN RIGHTS IN INDIA

What was the First Global Expression of Human Rights ?

The first global expression of human rights came in 1948, just after the second world war, in the form of the **Universal Declaration of Human Rights** adopted by the UN General Assembly. The declaration recognizes that human beings are inherently entitled to certain rights; justice and peace in the world can be established only if the human dignity of all people is respected, and disregard for the same outrages the conscience of mankind. The declaration recognizes freedom of speech, belief, freedom from fear and from want as the highest aspiration of people. The declaration consists of 30 articles which have been elaborated in subsequent international treaties, regional human rights instruments, national constitutions and laws. The International Bill of Human Rights which consists of the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, and the International Covenant on Civil and Political Rights and its two Protocols, took on the force of international law in 1976. Subsequently, the Vienna Declaration and Plan of action were adopted in 1993. This declaration established the interdependence of democracy, economic development, and human rights; brought in the concept of rights being indivisible, interdependent, and inter-related and led to the creation of the post of United Nations High Commissioner for Human Rights . India is also a signatory to the Vienna declaration.

What is the main framework for protecting human rights in India ?

The main framework for protecting human rights in India is provided by the **Protection of Human Rights Act, 1993.** This has been enacted pursuant to the directive under Article 51 of the Constitution and also the commitments taken at the Vienna conference. It defines human right as the right relating to liberty, equality and dignity of the individual guaranteed by the Indian constitution as embodied in the fundamental rights and the International covenants (International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights adopted by the General Assembly of the United Nations on the 16th December, 1966), and enforceable by courts in India.

The Act provides for the constitution of a National Human Rights Commission, State Human Rights Commission in States and Human Rights Courts for better protection of human rights and for matters connected therewith.

What functions does the Act assign to the National Human Rights Commission ?

According to the Act the Commission is required to inquire, into violation of human rights,

or abetment or negligence in the prevention of such violation, by a public servant; intervene in any proceeding involving any allegation of violation of human rights pending before a court with the approval of such court; visit, any jail or any other institution under the control of the State Government, where persons are detained or lodged for purposes of treatment, reformation or protection to study the living condition of the inmates and make recommendations thereon ; review the safeguards under the Constitution or any law for the time being in force for the protection of human rights and recommend measures for their effective implementation; review the factors, including acts of terrorism that inhibit the enjoyment of human rights and recommend appropriate remedial measures; study treaties and other international instruments on human rights and make recommendations for their effective implementation; undertake and promote research in the field of human rights; spread human rights literacy among various sections of society and promote awareness of the safeguards available for the protection of these rights through publications, the media, seminars and other available means; encourage the efforts of non - Governmental organizations and institutions working in the field of human rights; such other functions as it may consider necessary for the promotion of human rights.

What is the objective for setting up Human Rights Courts ?

The human rights courts are set up for the purpose of providing speedy trial of offences arising out of violation of human rights. As per the Act the State Government may, with the concurrence of the Chief Justice of the High Court, specify for each district a Court of Session to be a Human Rights Court to try the said offences. For every Human Rights Court, the State Government is required to specify a Public Prosecutor or appoint an advocate who has been in practice for not less than seven years, as a Special Public Prosecutor for the purpose of conducting cases in that Court.

How does the National Human Rights Commission function ?

The NHRC takes up cases either on its own initiative or on the basis of complaints received. It has all the powers of a civil court trying a suit under the Code of Civil Procedure, 1908, particularly with regard to summoning and enforcing the attendance of witnesses and examining them on oath; discovery and production of any document; receiving evidence on affidavits; requisitioning any public record or its copy from any court or office; issuing commissions for the examination of witnesses or documents; any other matter which may be prescribed. The Commission has its own investigating staff headed by a Director General of Police for investigation into complaints of human rights violations. Under the Act, it is open to the Commission to utilise the services of any officer or investigation agency of the Central Government or any State Government. The Commission has also associated non - Governmental organizations in many cases.

What steps can the NHRC take once it establishes of violation of human rights ?

The NHRC can recommend to the concerned government to initiate action against the guilty, it can recommend grant of immediate relief to the victim or his family and it can also approach the Supreme Court or High Courts for orders that they may deem necessary. The concerned government is required to indicate the action taken on the Commission's recommendations within one month in general cases and three months in cases concerning the armed forces.

How can complaints be made to the Commission?

Self contained complaints can be made in Hindi, English or any other language in the Eighth Schedule of the Constitution . Additional documents or affidavits can be asked for. The commission also has the discretion for accepting complaints telegraphically or through the FAX, email or the mobile telephone number of the Commission. However, complaints are not accepted if the event referred to is more than a year old, or the matter is

sub- judice, vague, anonymous, pseudonymous, frivolous or pertaining to service matters.

WIKILEAKS

What is WikiLeaks ?

WikiLeaks is an international website that publishes anonymous submissions and leaks of sensitive governmental, corporate, organisational or religious documents. This website WikiLeaks.org was launched on 4th October 2006. The website was unveiled and published its first document in December 2006, claiming a database of more than 1.2 million documents within a year of its launch. WikiLeaks founders are a mix of journalists, mathematicians, and start-up company technologists from the United States, Taiwan, Europe, Australia and South Africa. Julian Assange an Australian internet activist is generally described as its director. The site was originally launched as a user-editable wiki, but has progressively moved towards a more traditional publication model and no longer accepts either user comments or edits. WikiLeaks also develops and adapts technologies to support these activities.

Where is WikiLeaks located ?

The WikiLeaks Headquarters has surprised everybody with its extraordinary location and conditions.The Turkey-based WikiLeaks office was constructed during the cold war, and reconstructed by the Pionen company in 2008. This could be the most strong and 'wonderful' office that's established in the past ten years. Though the offices of social networking service Facebook and Search engine giant Google were already in hot discussions – the WikiLeaks Bunker pictures shows how powerful and unique an office can be.

Some astonishing facts about Bahnhof AB office interior where WikiLeaks data is safely stored:

1. Originally built in cold war years to survive nuclear attack
2. It is buried deep under a granite mountain
3. There is only one entry and exit
4. Generators of German U-Boat submarines work as a backup power
5. Fish tanks, fountains and plants are beautifying the ambience

Who are the people behind WikiLeaks ?

WikiLeaks claim it has a volunteer group of about 1,400 people, but these numbers have expanded. The group basically includes journalists, software programmers, network engineers, mathematicians and others.

How does WikiLeaks function ?

WikiLeaks has combined high-end security technologies with journalism. Like other media outlets conducting investigative journalism, WikiLeaks accepts (but does not solicit) anonymous sources of information. When information comes in, journalists analyse the material, verify it and write a news piece about it describing its significance to society. WikiLeaks then publishes both the news story and the original material in order to enable readers to analyse the story in the context of the original source material themselves. If the main site wikiLeaks.org is not functional then WikiLeaks also currently has 1426 up-to-date sites .

What is the status of Wikileaks ?

The legal status of WikiLeaks is complex. Assange considers WikiLeaks a whistleblower protection intermediary. Rather than leaking directly to the press, and fearing exposure and retribution, whistleblowers can leak to WikiLeaks, which then leaks to the press for them. Its servers are located throughout Europe and are accessible from any uncensored web connection. The group has located its headquarters in Sweden because it has one of the world's strongest shield laws to protect confidential source-journalist relationships. WikiLeaks has stated that they "do not solicit any information". However, Assange used his speech during the Hack In The Box conference in Malaysia to ask the crowd of hackers and security researchers to help find documents on its "Most Wanted Leaks of 2009" list.

RECENT STEPS TO CHECK GENERATION AND SPREAD OF BLACK MONEY

What, Broadly, has been the Government's Strategy for Tackling Illicit Funds?

The Government has adopted five-fold strategy

to tackle the menace of illicit funds. This consists of:

- Joining global crusade against 'black money';
- Creating an appropriate legislative framework;
- Setting up institutions for dealing with Illicit Funds;
- Developing systems for implementation; and
- Imparting skills to the manpower for effective action.

The government has recently taken several steps to check the generation and spread of black money. Some of these include:

- Constitution of a Committee under the Chairmanship of Chairman, Central Board of Direct Taxes (CBDT) to examine ways to strengthen laws to curb the generation of black money in the country, its illegal transfer abroad and its recovery.
- Commissioning fresh study through top national level institutions for estimation of unaccounted income/wealth both inside and outside the country.
- Creation of new Directorate of Income Tax (Criminal Investigation)
- The government will introduce a Bill in the monsoon session of Parliament that will enable confiscation of illegal money.

The Committee will be headed by Chairman, Central Board of Direct Taxes (CBDT). It includes Member (L&C), CBDT; Director, Enforcement Directorate (ED); Director General, Directorate of Revenue Intelligence (DRI); Director General (Currency); Joint Secretary (FT&TR),CBDT; Joint Secretary, MoL; Director, FIU-IND, all as its Members. The Commissioner of Income Tax (CIT)(Inv), CBDT would be its Member Secretary.

What are the functions of this committee?

The Committee will examine the existing legal and administrative framework to deal with the menace of generation of black money through illegal means including, inter alia,

(a) Declaring wealth generated illegally as national asset;

(b) Enacting/amending laws to confiscate and recover such assets; and

(c) Providing for exemplary punishment against its perpetrators.

The Committee will also consult all the stakeholders and submit its report within a period of six months.

Which are the national level institutions conducting the study for estimation of unaccounted income? **The study is being undertaken by the following national institutes:-**

(a) National Institute of Public Finance and Policy (NIPFP);

(b) National Institute of Financial Management (NIFM) ; and

(c) National Council of Applied Economic Research (NCAER).

What is the purpose of the study?

This study will bring out the nature of activities that encourage money laundering and its ramifications on national security. The study has already commenced in March, 2011 and is expected to be completed within a period of 18 months. The terms of reference of the study are as follows:

(i) To assess/survey unaccounted income and wealth both inside and outside the country.

(ii) To profile the nature of activities engendering money laundering both inside and outside the country with its ramifications on national security.

(iii) To identify important sectors of economy in which unaccounted money is generated and examine causes and conditions that result in generation of unaccounted money.

(iv) To examine the methods employed in generation of unaccounted money and conversion of the same into accounted money.

(v) To suggest ways and means for detection and prevention of unaccounted money and

bringing the same into the mainstream of economy.

(vi) To suggest methods to be employed for bringing to tax unaccounted money kept outside India. (vii) To estimate the quantum of non-payment of tax due to evasion by registered corporate bodies.

So far there are no reliable estimates of black money generated and held within and outside the country. The different estimates on quantum of black money range between USD 500 billion to USD 1,400 billion. The Government has therefore, commissioned these institutions to get an estimation and sense of the quantum of illicit fund generated and held within and outside the country.

The DCI will perform functions in respect of criminal matters having any financial implication punishable as an offence under any direct tax law. The DCI will be required to perform the following functions:

(a) To seek and collect information about persons and transactions suspected to be involved in criminal activities having cross-border, inter-state or international ramifications, that pose a threat to national security and are punishable under the direct tax laws;

(b) To investigate the source and use of funds involved in such criminal activities;

(c) To cause issuance of a show cause notice for offences committed under any direct tax law;

(d) To file prosecution complaint in the competent court under any direct tax law relating to a criminal activity;

(e) To hire the services of special prosecutors and other experts for pursuing a prosecution 'complaint filed in any court of competent jurisdiction;

(f) To execute appropriate witness protection programmes for effective prosecution of criminal offences under the direct tax laws, i.e. to protect and rehabilitate witnesses who support the state in prosecution of such offences so as to insulate them from any harm to their person;

(g) To coordinate with and extend necessary expert, technical and logistical support to any other intelligence or law enforcement agency in India investigating crimes having cross-border, interstate or international ramifications that pose a threat to national security;

(h) To enter into agreements for sharing of information and other cooperation with any central or state agency in India;

(i) To enter into agreements for sharing of information and other cooperation with such agencies of foreign states as may be permissible under any international agreement or treaty; and

(j) Any other matter relating to the above

What will be the broad structure of DCI?

The DCI will be headed by a Director General of Income Tax (Criminal Investigation), who will be an officer of the rank of Chief Commissioner of Income Tax, and will be located in New Delhi. The DCI will function under administrative control of the Member (Investigation) in the Central Board of Direct Taxes (CBDT) and will be a subordinate office of CBDT. The DCI shall have eight Directors of Income Tax (Criminal Investigation) located at Delhi, Chandigarh, Jaipur, Ahmedabad, Mumbai, Chennai, Kolkata and Lucknow.

FINANCIAL COMMITTEES OF THE PARLIAMENT OF INDIA

How many Committees on Financial Issues are there in Parliament ?

In a parliamentary democracy like ours, the Committee system assumes great importance. By its very nature, Parliament, as a body cannot have an effective control over the government and the whole gamut of its activities. Administrative accountability to the legislature through Committees has been the hallmark of our political system. There are three financial committees in the Parliament and they are appointed and elected by the House or nominated by the Speaker and which works under the direction

of the Speaker. These Committees can be classified into the following categories;

(1) Estimates Committee

(2) Public Account Committee

(3) Committee on Public Undertakings

What is the Estimates Committee ?

The Estimates Committee consists of 30 Members, elected every year by the Lok Sabha from amongst its Members and the term of this committee is one year. The Chairman of the Committee is appointed by the Speaker from amongst its members. A Minister cannot be elected as a member of the Committee and if a member after his election to the Committee is appointed a Minister, he ceases to be a member of the Committee from the date of such appointment.

What are the functions of this committee?

(a) to report what economies, improvements in organisation, efficiency or administrative reform, consistent with the policy underlying the estimates may be effected.

(b) to suggest alternative policies in order to bring about efficiency and economy in administration

(c) to examine whether the money is well laid out within the limits of the policy implied in the estimates; and

(d) to suggest the form in which the estimates shall be presented to Parliament. The Committee does not exercise its functions in relation to such Public Undertakings as are allotted to the Committee on Public Undertakings by the Rules of Procedure of Lok Sabha or by the Speaker.

What is the Committee on Public Accounts?

The Committee on Public Accounts was first set up in 1921 in the wake of the Montague-Chelmsford Reforms. The Public Accounts Committee is now constituted every year under Rule 308 of the Rules of Procedure and Conduct of Business in Lok Sabha. The Public Accounts Committee consists of not more than 22 members comprising of 15 members elected by Lok Sabha every year from amongst its members according to the principle of proportional representation by means of single transferable vote and not more than 7 members of Rajya Sabha elected by that House in like manner.

What are the functions of this committee?

The functions of the Committee, include examination of accounts showing the appropriation of sums granted by Parliament for the expenditure of the Government of India, the annual finance accounts of the Government and such other accounts laid before the House as the Committee may think fit. In scrutinising the Appropriation Accounts of the Government of India and the Report of the Comptroller & Auditor General of India thereon, the Committee has to satisfy:

(a) that the moneys shown in the accounts as having been disbursed were legally available for, and applicable to, the service or purpose to which they have been applied or charged;

(b) that the expenditure conforms to the authority which governs it; and

(c) that every re-appropriation has been made in accordance with the provisions made in this behalf under rules framed by competent authority.

It shall also be the duty of the Committee –

(a) to examine the statement of accounts showing the 'income and expenditure of state corporations, trading and manufacturing schemes, concerns and projects together with the balance sheets and statements of profit and loss accounts which the President may have required to be prepared or are prepared under the provisions of the statutory rules regulating the financing of a particular corporation, trading or manufacturing scheme or concern or project and the report of the Comptroller and Auditor General thereon.

(b) to examine the statement of accounts showing the income and expenditure of autonomous and semi autonomous bodies, the audit of

which may be conducted by the Comptroller and Auditor General of India either under the directions of the President or by a statute of Parliament; and

(c) to consider the report of the Comptroller and Auditor General in cases where the President may have required him to conduct an audit of any receipts or to examine the accounts of stores and stocks. If any money has been spent on any service during a financial year in excess of the amount granted by the House for that purpose the Committee shall examine with reference to the facts of each case the circumstances leading to such an excess and make such recommendation as it may deem fit.

What is the Committee on Public Undertakings?

The Committee on Public Undertakings consisting of 22 Members, fifteen elected by the Lok Sabha and seven by the Rajya Sabha, from amongst their Members according to the principle of proportional representation by means of a single transferable vote for a term of one year. The Chairman is appointed by the Speaker from amongst the Members of the Committee. A Minister is not eligible to become a Member of the Committee. If a Member after his election to the Committee is appointed a Minister, he ceases to be a Member of the Committee from the date of such appointment.

What are the functions of this committee?

(a) to examine the reports and accounts of Public Undertakings specified in the Fourth Schedule to the Rules of Procedure and Conduct of Business in Lok Sabha ;

(b) to examine the reports, if any, of the Comptroller and Auditor General of India on the Public Undertakings;

(c) to examine, in the context of the autonomy and efficiency of the Public Undertakings whether the affairs of the Public Undertakings are being managed in accordance with sound business principles and prudent commercial practices ; and

(d) to exercise such other functions vested in the Public Accounts Committee and the Estimates Committee in relation to the Public Undertakings as are not covered by clauses (a), (b) and (c) above and as may be allotted to the Committee by the Speaker from time to time.

WHAT IS THE NATIONAL KNOWLEDGE NETWORK?

The National Knowledge

Network (NKN) is a major step towards building a knowledge society without boundary. It is a multi- gigabit, unified, high speed network that aims to connect over 1500 institutions like universities, research institutions, libraries, laboratories, healthcare and agricultural institutions, nuclear, space and defence research agencies in the country. This initiative is expected to help build quality institutions in the country and improve the level and quality of research by making it multidisciplinary an[illegible]

[illegible] High speed backbone for e-Governance and integration of different sectoral networks in the field of research, education, health, commerce and governance. The Government approved the establishment of the National Knowledge Network (NKN) in March 2010, at an outlay of Rs.5990 crore. A High Level Committee (HLC) has been set up for establishment of NKN, under the Chairmanship of the Principal Scientific Advisor to GoI. National Informatics Centre has been designated as the implementing agency and the action plan has been developed by the Technical Advisory Committee (TAC) set up by the HLC.

What are the Main Features of NKN?

The NKN will consist of an ultra-high speed Core (multiples of 10Gbps and upwards), and over 1500 nodes. It is scalable to higher speed and more nodes also. The Core shall be complemented with a distribution layer at appropriate speeds. The participating institutions can directly or through distribution layer connect to the National Knowledge Network at speeds of 100 Mbps /1 Gbps. The architecture of the network aims to provide reliability, availability and scalability. NKN enables creation of Virtual Private Networks (VPN) for special interest groups. It also provides international connectivity to its users for global collaborative research. Presently, NKN is connected to Trans Eurasia Information Network (TEIN3). Similar connectivity to GLORIAD network is in the pipeline.

Countrywide Virtual Classroom

The NKN is a platform for delivering effective distance education where teachers and students can interact in real time. The network enables cosharing of information such as classroom lectures, presentations and handouts among different institutions.

Collaborative Research

The NKN enables collaboration among researchers from different entities like GLORIAD, TEIN3, GARUDA, CERN etc. NKN also enables sharing of scientific databases and remote access to advanced research facilities.

Virtual Library

The virtual library involving sharing of journals, books and research papers across different institutions, is a natural application for NKN.

Sharing of Computing Resources

High-performance computing is critical for national security, industrial productivity, and advances in science and engineering. The network enables a large number of institutions to access high performance computing to conduct advanced research in areas such as weather monitoring, earthquake engineering and other computationally intensive fields.

Grid Computing

The NKN has the capability to handle high bandwidth with low latency and provision to overlay grid computing. Some of the grid based applications are climate change/global warming, science projects like Large Hadron Collider (LHC) and ITER. The NKN can be the platform to realize many such innovative applications.

Network Technology Test-bed

NKN provides test-bed for testing and validation of services before they are made available to the production network. NKN also provides an opportunity to test new hardware & software, vendor interoperability etc.

e-Governance

NKN acts as a super highway for integrating e- Governance infrastructure such as government data centres and networks. NKN provides bulk data transfer facility required for e-Governance applications.

What is the Current status of NKN?

The initial phase of NKN was inaugurated by H.E. Smt. Pratibha Patil, Hon'ble President of India on April 9, 2009. Its Logo and website (www.nkn.in) were inaugurated by Shri Kapil Sibal Hon'ble Minister for Communications & Information Technology on February 5th, 2011. A core Backbone consisting of 18 Points of Presence (PoPs) has been established with 2.5 Gbps capacity. A total 96 number of Institutions have been connected to National Knowledge Network and 15 virtual classrooms have been setup. Total 102 links and 50 core links have been commissioned and made operational. Trans Eurasia Information Network (TEIN3) links is integrated with National Knowledge Network. MoU has been signed between the National Knowledge Network (NKN) , Tata Institute of Fundamental Research (TIFR) and GLORIAD (The Global Ring Network for Advanced Applications Development).

NUCLEAR POWER PROGRAMME OF INDIA

What is India's 3-Phase Nuclear Power Programme?

In view of the limited fossil fuel availability with in the country, the relevance of Nuclear Power in meeting the short and long term needs of our energy was recognised right at the initial stage. From the very beginning, as a long term strategy, the Nuclear Power Programme formulated by Dr. Homi Bhabha embarked on the three stage nuclear power programme, linking the fuel cycle of Pressurised Heavy Water Reactor (PHWR) and Fast Breeder Reactor (FBR) for judicious utilisation of our limited reserves of Uranium and vast Thorium reserves. The emphasis of the programme was self-reliance and thorium utilisation as a long term objective. The PHWR was chosen due to extensive research and development facilities covering diverse areas for supporting technology absorption.

What are the three stages of our Nuclear Power Programme?

Stage-I : envisages, construction of Natural Uranium, Heavy Water Moderated and Cooled Pressurised Heavy Water Reactors (PHWRs). Spent fuel from these reactors is reprocessed to obtain Plutonium.

Stage-II : envisages, construction of Fast Breeder Reactors (FBRs) fuelled by Plutonium produced in stage-I. These reactors would also breed U-233 from Thorium.**Stage-III** : would comprise power reactors using U-233 / Thorium as fuel.

How is environment surrounding Nuclear Plant monitored?

This is done by the Environmental Survey Laboratory (ESL) set up well before starting the operation of the plant. The ESL collects data on forest, flora and fauna, marine products, food and air etc., to set up base level data on their quality prior to commencement of the operation of the plant. Samples are drawn and regularly analysed to ascertain the status on a continuous basis. The ESL functions independent of plant authorities and the data collected is checked by the regulatory authorities for control purposes.

Can a Chernobyl type accident take place in Indian Nuclear Power Plants?

Nuclear power has a very good safety record for a period spanning more than three decades. The Three Mile Island (TMI) accident in March, 1979 and the Chernobyl accident in April, 1986, have raised apprehensions in the minds of the public all over the world. In the case of TMI, no radiation injury had occurred to any member of the public. In fact all the safety systems had worked as designed and no radioactivity was released to the atmosphere. At Chernobyl, thirty-one people died and they were all plant personnel. However, it must be recognised that the Chernobyl accident occurred due to the negligence of operators who violated the safety procedures. Besides, the Chernobyl reactor is a totally different type. It employed Graphite as a moderator. Graphite is a form of carbon and its combustible property contributed to explosion in the reactor core. Such a sequence of events in the Nuclear plants is not possible and explosion in the core is ruled out as it is cooled and moderated by heavy water. Adequate safety features in the plant are provided to ensure its safe operation. Paramount importance is given in setting up of nuclear power installations, to the safety of operating staff, public and environment. Safety experts and regulatory personnel are associated at all commissioning and operation of nuclear power plants. Thus Chernobyl type accident is ruled out in Indian Nuclear Power Plants.

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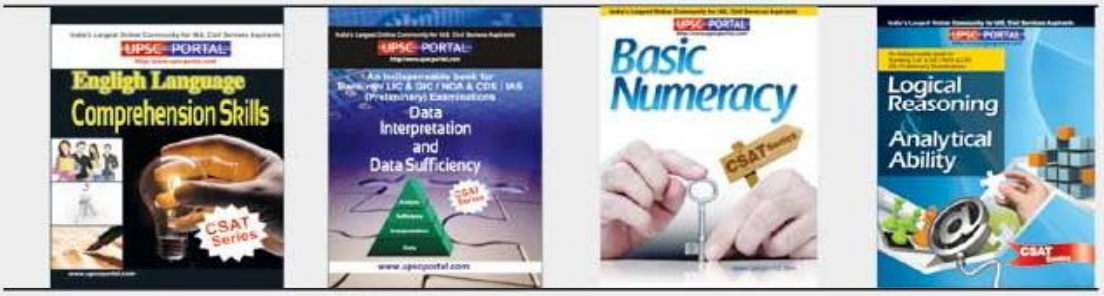

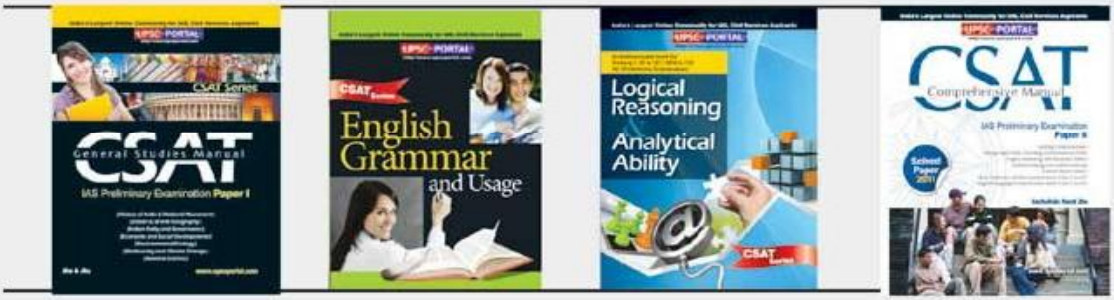

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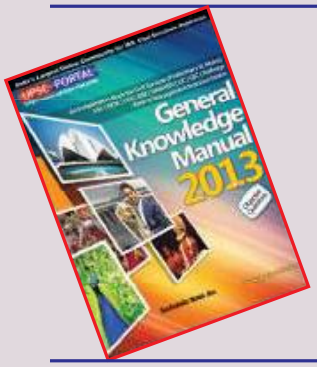

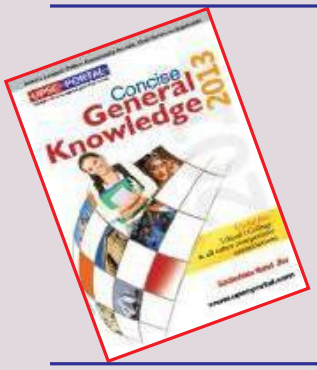

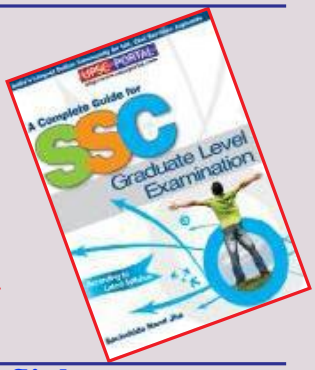

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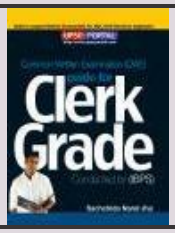

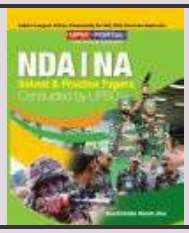

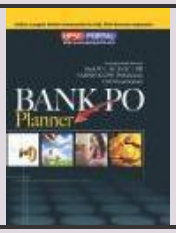

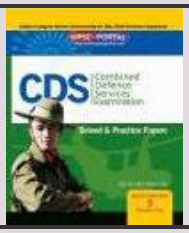

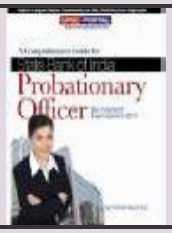

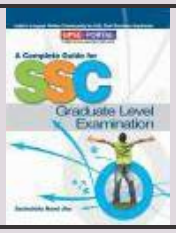

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