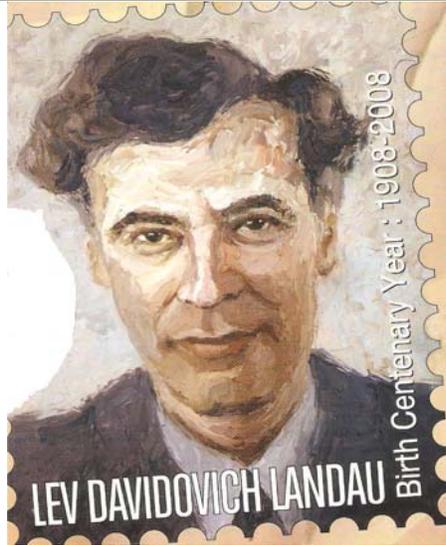




Manthan

A Quarterly Magazine Published by BiharBrains

January 2009



**Lev Landau
1908-1968**

**Nobel Laureate
Scientist of Physics**

**Birth Centenary
Year 2008**

Brahmi Butti

**Mithila Painting for
Solving Problems**



Manthan

January, 2009

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Manthan is a quarterly magazine published by BiharBrains, an international Forum of educated people of Bihar with the objectives of sharing ideas, knowledge and achievements which can be benefited to the scientific and non-scientific community.

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Editor's Desk

The Year 2008 was the **Centenary year** of the Great Russian physicist L.D. Landau who was awarded the **Nobel Prize** in physics in 1962. He made several contributions to all branches of theoretical physics, includes statistical physics, solid state physics, quantum physics, plasma physics and in electrodynamics. I salute this great scientist for his outstanding contribution to the world of science. This issue covered the life history of Prof. Landau.

Mithila Painting has become famous throughout the world for their artistic expression of views, traditional culture, spiritual ethics and more than that its unique way of diagnostics of common life problems which may be used for world's peace, progress and prosperity. This issue has also covered brief about Diagnostic Mithila Painting in Human Resource section.

The other section of Manthan for this issue is also almost remains same as that of earlier issues. We solicit your reactions, comments and suggestions in the mailbox and expect that with your help and support in future this magazine will grow into a versatile platform. For details you are free to visit our website www.bbmanthan.info.

Bibhuti Bikramditya
Chief Editor



Lev Davidovich Landau: Nobel Laureate scientist of Physics

Year 2008- Birth centenary year celebration

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Salute the Contribution of this Visionary Scientist

The Year 2008 is the **Centenary year** of the Great Russian physicist L. D. Landau, born on Jan 1908. He was awarded the **Nobel Prize** in physics in 1962 for his contribution to creation of knowledge for the benefit of the mankind. In the Soviet Union he was directly elected as a member of the academy of science and was given the title "*The hero of the societal effort*". He has made several contributions to all branches of theoretical physics, includes statistical physics, solid state physics, quantum physics, plasma physics and in electrodynamics. Landau was awarded an honorary doctorate degree in 1934. He received the Fritz London prize in 1960 and in the same year the Max Planck medal. He is a great academician, a born teacher and a man of great passion.

Exploiting magnetic, electrical and optical properties to develop novel materials have been a **major research area** during recent times. This is due to a variety of applications

they offer such as information storage, magneto optical devices, magnetic fluid, sensing devices. All these properties owe the genesis of their basic ideas in different theories of Lev D. Landau. Landau's theory of diamagnetism leads to an additional susceptibility that can be used for developing sensors. Different applications in magneto hydrodynamic devices basic idea come from the Landau's theory of superfluidity.

Solid State Physics and Landau

Landau is known as acknowledged scientist who worked on atomic collisions, astrophysics, low temp physics, atomic & low lamp Physics, thermodynamics, quantum electrodynamics, kinetic theory of gases, Quantum field theory, and plasma Physics etc. He mentioned the superfluidity of liquid helium. He drew attention towards soft condense matter physics, which involves colloids, polymer solutions, emulsion, foams, surfadnt solutions,



powers and similar materials (domestic examples are respectively paint, Engine oil, shaving cream, talc etc.)

Statistical Physics and Landau

Landau had long been of the opinion that Bose-Einstein condensation had nothing in common with the superfluidity of liquid He. His assertion on the gases that an ideal Bose gas is not superfluid. He has given a systematic formulation of the theory of phase transition. In this transition he explained the temperature dependence of free energy. Landau's parameters and evaluation of effective mass (m^*) related as $m^*/m = 1 + F/3$, where F is Landau parameter, which is associated with the strength of the quasi-particle interaction in liquid He.

Landau and Astro physics

In 1931, Landau developed the view that stars have centrally condensed core, and such core consists entirely of neutrons where Landau's idea enjoyed a positive reception from *Izvestiia* and Soviet Academy. This response was not sufficient to keep him out from Soviet Jails. However, this idea did play a major role initiating Robert Oppenheimer's research into relativistic gravitational collapse that would have led Oppenheimer to the idea of what came to be called as **Black holes**. Landau's work on stellar energy was based on pair-neutron theory. During phase transition energy is not conserved, due to which energy state of stars is not predictable. He did a lot of work on stellar energy along with Gamow.

Landau was not a only man of Science, his areas are art, music, and movie. He read voraciously, he was found of painting. A rational man accepted only realistic art. It is

often asked, but what kind of a person he really, what was his temperament, He was in fact very benevolent anyone willing to do theoretical physics, could come to him but he was a man of principle, who would not compromise on issues of science or relations between people. He was absolutely intolerant of falsehood, pseudoscience and its representative and he did not hesitate to express his opinion their work nor did he hesitate to express his attitude towards erroneous result by well know legitimate scientist. **Still his discoveries, books and working style are giving directions to budding scientist.**

On Jan 7, 1962, Landau met with a car accident and become unconscious. Several times doctors declared him clinically dead. Although he returned to normal, he could never again perform creative work. April 1, 1968 he died in Moscow, USSR. **Thus a great scientist of 20th century went to his heavenly abode but his research contributions be a guiding principle for future generations come.**

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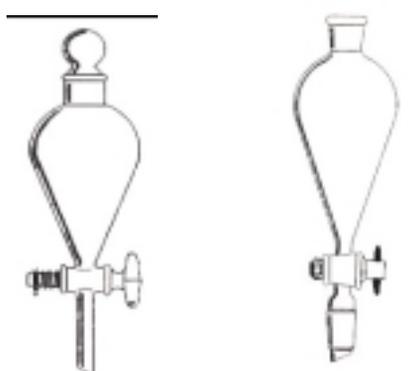


The role of liquid-liquid extraction on separation/recovery of zirconium and hafnium—A general study

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Liquid-liquid extraction (LLE) is a process of transferring a chemical compound from one liquid phase to a second liquid phase, immiscible with the first. For the separation and purification of metal ions, this method is known since 1842^[1]. In LLE, a solute distributes itself between two immiscible liquids. The distribution of a solute between two immiscible solvents is univariant at constant temperature and pressure. That is, if we choose the concentration of the solute in one phase, its concentration in the other phase is fixed. In analytical chemistry, this method enjoys a favored position among separation techniques because of its simplicity, speed and wide scope. By utilizing simple apparatus no more complicated than a separatory funnel and requiring several minutes at most to perform, extraction procedures offer much to the analytical chemist.



Models of separating funnels

In chemical technology, the LLE of metal chelates play an important role in the purification of chemical reagents. This method is also frequently used in nuclear chemistry and technology for the separation of various radioisotopes and for the reprocessing of nuclear fuels.

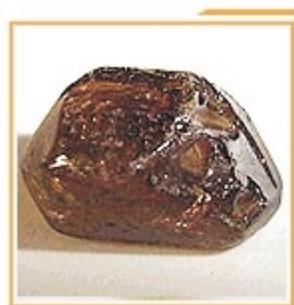
Zirconium metal basically finds application in the nuclear power program due to the combination of variety of properties such as (i) low thermal neutron absorption cross section, (ii) adequate strength and ductility at reactor operating temperatures, (iii) good corrosion resistance at high temperatures in aqueous environments, (iv) reasonable dimensional stability under irradiation and (v) good compatibility with the fuel material. Zirconium and hafnium co-exist in nature and are difficult to separate because of similar chemical properties due to the lanthanide contraction. To produce high pure zirconium, the processing involves production of ZrO_2 free of hafnium.



Hafnium metal



Zirconium rod



Zirconium Silicate ($Zr.SiO_4$)

Klaproth^[2] had previously isolated the oxide of zirconium from a sample of zircon



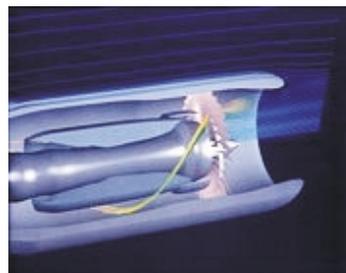
$ZrSiO_4$. Zirconium's main minerals are zircon ($ZrSiO_4$) and baddeleyite (ZrO_2) found in the USA, Australian and Brazil and invariably containing hafnium, most commonly in quantities around 2% of the zirconium content. Only in a few minerals, such as alvite, $MSiO_4 \cdot X H_2O$ ($M=Hf, Th, Zr$), hafnium content occasionally exceed that of zirconium. As a result of the lanthanide contraction the ionic radii of zirconium and hafnium are virtually identical and their association in nature parallels their very close chemical similarity.

Hafnium, a co-genitor of zirconium, occurs to the extent of 1–2 % in the mineral zircon, which is an important constituent of the beach sands of south– west and east–coasts of India, representing about 8 % of the Global reserves. Indian Rare Earths operates three plants of mining and beneficiation of beach sand minerals and their current production of zircon is about 20,000 turns per year. In order to achieve these objectives, the zirconium and hafnium metals industry and the need to separate zirconium and hafnium from other associated metals like Ti, Fe, Si and Al etc are indispensable.

The major uses of hafnium involve the metal as an alloying additive (1-2%) in the preparation of nickel-based super alloys. These alloys are used in turbine vanes in the combustion zone of jet aircraft engines. The second major use of hafnium is as control-rod material in nuclear reactors. Hafnium tetrachloride has been used to prepare hafnium metallocene Ziegler–Natta type catalysts, which were the first catalysts to provide high yields of high molecular mass isotactic polypropylene^[3] and in some heavy – metal fluoride glass cladding^[4].



Pratt & Whitney F100 turbo fan engine



Low bypass turbo fan's airflow

Nuclear power plants in India

Initially, two different LLE^[5] techniques were used to promote zirconium and hafnium separation: the MIBK (Methyl-isobutyl ketone) – thiocyanic- hydrochloric acid process and the TBP (Tri-butyl-phosphate)–nitric acid process. The former began to be developed at the Oak Ridge National Laboratory in 1949 and was optimized in a pilot plant at the US Bureau of Mines. The second process was developed in France 1954 by the French Nuclear Agency and was improved at Iowa State University. In 1978, a French state company, CEZUS began to operate using a new pyrometallurgical process.

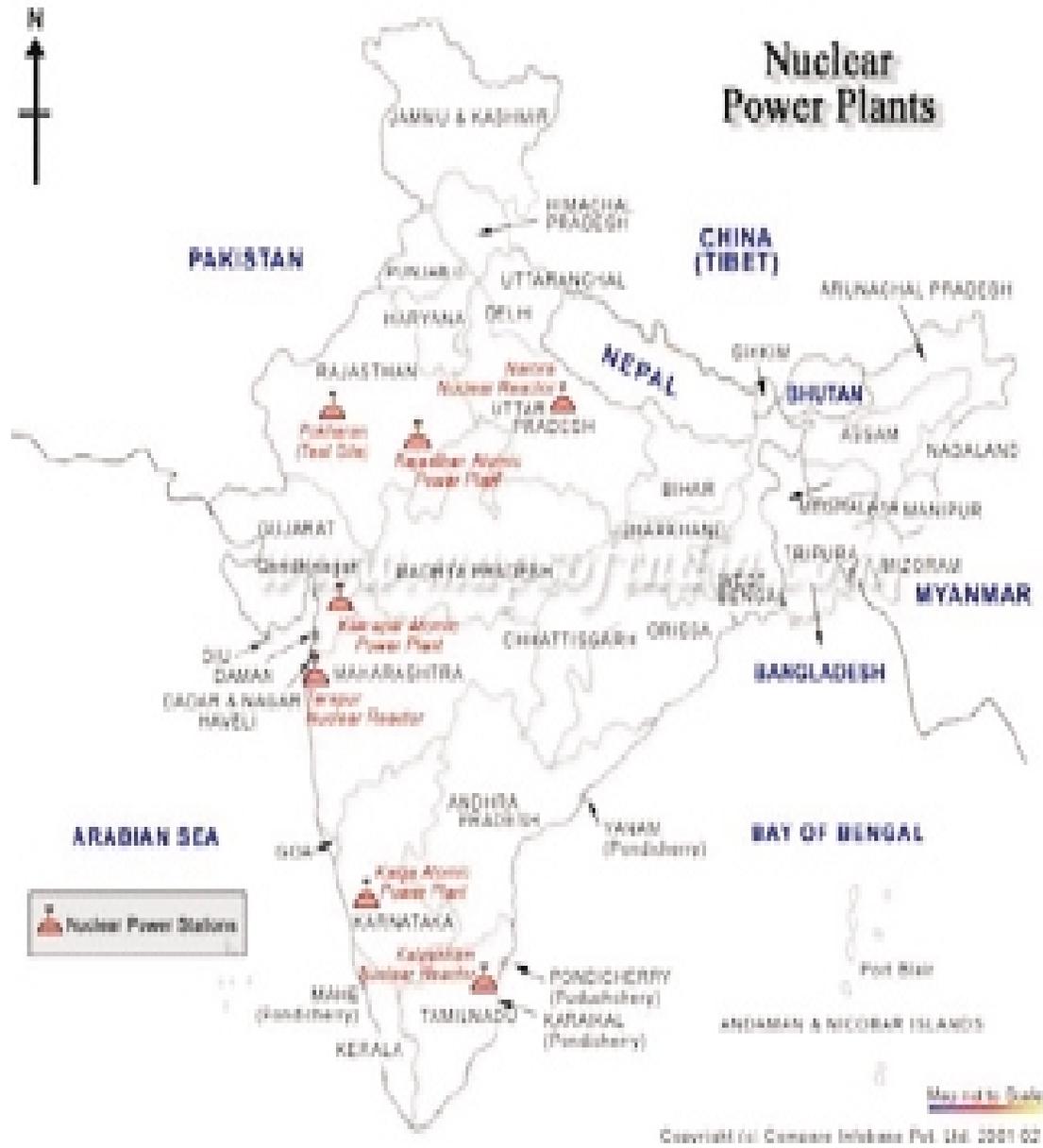
In the MIBK process, the thiocyanate complexes of zirconium and hafnium formed in HCl medium (2 mol.dm^{-3}) exhibit different solubility in MIBK. In this process, it is hafnium, the minor component that is concentrated in the organic phase and exhibits a separation factor ($\beta = D_{Hf} / D_{Zr}$) of seven. Nevertheless, the generated waste streams contain high concentrations of ammonium



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cyanides; the solvent itself is highly volatile and exhibits about two percent solubility in the aqueous phase. In the TBP process, the organic phase containing TBP diluted in kerosene is contacted with aqueous phase containing below 30 gpl metals (Zr + Hf) and about 3 mol.dm⁻³ HNO₃ and NaNO₃. This

process is selective for zirconium and exhibits a separation factor ($\beta = D_{Zr} / D_{Hf}$) of ten. Presently, this process is used in India. The drawback of this process is its inability to produce nuclear grade hafnium. In spite of the commercial metal separation processes available based on LLE, there has been a



Nuclear power plants in India



continuous effort worldwide in the development of new reagents and their applications as reagents for metal determination, metals separation in analytical chemistry and ultimate use in commercial separation of metals if possible.

In this endeavour, the development of organophosphorus based extractants such as D2EHPA or TOPS 99 an equivalent of D2EHPA produced in India (Di-2-ethylhexyl phosphoric acid), PC 88A (2-ethyl hexyl phosphonic acid mono-2-ethyl hexyl ester) marketed by Daihachi Chemical Industry, Japan, Cyanex 272 (bis (2,4,4-trimethylpentyl) phosphinic acid) marketed by Cytec Canada, which are commercially applied for impurities removal from feed solutions, separation and recovery of cobalt from nickel, separation of rare earths etc., and oxime based extractants such as LIX reagents with different combinations (LIX 84-IC (2-hydroxy-5-nonylacetophenoneoxime) and LIX 860N-IC (2-hydroxy-5-nonylsalicylaldehydeoxime)) supplied by Cognis Corporation, USA, which are commercially applied for the separation and recovery of copper from highly acidic lean leach liquors obtained by the dump leaching of inferior quality copper sources, achieved a breakthrough in separation science and technology.

A study related to LLE of zirconium and hafnium would be helpful to the advancement of existing knowledge in this field. This information would be useful in carrying out further studies in the extraction and separation methods.

With this objective, our ongoing research we were established the LLE of tetravalent zirconium and hafnium from acidic chloride solutions, the organophosphorus, thioorgano phosphorus, oximes and isoxazolones have been used as extraction reagents^[6-17].

Organophosphorus and thioorgano phosphorus extractants have some particular advantages such as chemical stability, generally good kinetics of extraction, good

loading and stripping characteristics, low solubility in the aqueous phase and availability in commercial quantities. Recently there have been increased interests in the potential applications of phosphonic and phosphinic acids. Oximes are designed specifically for the selective extraction of copper from dilute copper dump leach liquors by solvent extraction. These extractants are being investigated mainly for the extraction of copper, however other metals are also extracted by the oximes depending on the aqueous pH and metal oxidation state. Several types of oximes have been used for metal extraction to study due to their extraction abilities, loading capacities and kinetics of extraction. The oximes as extraction reagents offer immense possibilities for chemical separations in view of the numerous combinations of long chain oximes, the wide array of diluents available and the many anionic aqueous systems that can be readily produced. Isoxazolone group based extractants, have low acid dissociation constant due to electron delocalisation, and this property makes the isoxazolones an interesting class of β -diketones with potential application as reagents for extraction of metal ions from strong complexing in acid media.

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DNA methylation in relation to aging, cancer and dietary factors

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DNA methylation refers to the enzymatic addition of methyl groups to DNA. It occurs by covalent transfer of a methyl group from S-adenosyl methionine to cytosine (at the 5'-position) residues in the dinucleotide sequence CpG. This can be seen in a fairly large percentage of CpG dinucleotide sequences.

Landscape of Epigenetics

DNA methylation lies in the landscape of epigenetics. As opposed to the term genome, epigenome consists of DNA-associated proteins, and the patterns of DNA methylation. The extent of DNA methylation correlates with the extent of gene inactivation. Epigenetic studies encompass all those aspects that bring about a change in gene function due to DNA methylation, and due to modifications in proteins intimately associated with DNA. In recent years such studies have thrown light on the mysteries surrounding aging and cancer, which are related to the aberration in control of gene action. Histone deacetylation and chromatin remodeling, RNA inhibition, RNA modification, and DNA rearrangement also lie within the purview of epigenetic mechanisms.

Environmental factors and DNA methylation

Some environmental factors that affect DNA methylation include diet, proteins, drugs, and hormones. Epigenetic DNA modifications provide genomic plasticity and short-term adaptation of each generation to their environment. Induced methylation changes produce altered gene response upon subsequent hormonal stimulation. The gene-specific DNA methylation state may be

maintained by transmission through mitosis and meiosis. In certain type of cancer, different kinds of alterations in DNA methylation patterns are observed. These include: (1) global hypomethylation, and (2) regional hypermethylation. Regional hypermethylation occurs by specific regional changes in chromatin structure, whereas global demethylation is caused by a general increase in demethylation activity. In cancer cells there is also a deregulated level of expression of DNA methyltransferases.

Hypermethylation and hypomethylation

Hypermethylation silences growth regulatory genes so that there may not be uncontrolled growth whereas hypomethylation leads to activation of genes required for metastasis. Aberrant DNA hypermethylation in gene promoter regions leads to gene silencing, whereas global hypomethylation events result in chromosomal instability and oncogene activation. DNA hypomethylation can increase gene expression, particularly when occurring in the promoter region CpG sites. Hypomethylation may result from DNA excision repair. DNA hypomethylation in pericentromeric satellite regions of the chromosome is known to result in centromeric decondensation and enhanced chromosomal recombination in precancerous conditions and hepatocellular carcinomas. During the development and progression of malignant neoplasia, a global hypomethylation is often accompanied by a locus-specific hypermethylation.



Dietary factors and DNA methylation

Recent studies have also revealed that dietary factors can modulate DNA methylation, and thereby play a role in aging and tumorigenesis. Thus, it may not be unreasonable to suppose that DNA methylation serves as an important common link between aging, cancer, and nutrition. Certain pharmacologic agents are known to induce DNA hypomethylation or inhibit histone deacetylation. These agents can modify epigenetic events by restoring the defective expression of selected components called 'tumor recognition complex' in cancer cells.

Dichloroacetic acid (DCA), a liver carcinogen, induces DNA hypomethylation in mouse liver. Short-term exposure to arsenic has long-term effects in genome-wide DNA hypomethylation, which enhances genetic instability.

Vitamin B12 and folic acid, which act as coenzymes, also determine DNA hypomethylation. There is a possibility that sequence-specific alterations of DNA methylation in critical cancer-related genes might be due to folate deficiency. Folate plays a significant role in the prevention of chromosome breakage and hypomethylation of DNA. Deficiency of folate leads to demethylation of heterochromatin causing structural centromere defects that could

induce abnormal distribution of replicated chromosomes during nuclear division. A depletion of folates, lipotropes, including methionine, choline, betaine and S-adenosylmethionine, leads to the hypomethylation of oncogenes, resulting in DNA strand breaks, and thereby increases carcinogenesis.

Selenium deprivation ameliorates some of the effects of folate deficiency, probably by shunting the buildup of homocysteine (as a result of folate deficiency) to glutathione.

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Brahmi butti

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Since cenozoic (Miocene- 25million years to 12 million years) Brahmi is flourishing along with so many flowering plants.

Brahmi butti is scientifically known as *Centella asiatica* (Linn), urban sym! *Hydrocotyle asiatica* (Linn) it is usually known as Indian pennywort in English, manduk parni, Meghaparni, Meghapati, Brahmi manduki, Brahmi butti, Brahmi parani, Buddi vardini, in Hindi mani muni in Assam, Talkuri in Bangla, Tankuni in Angika, Karbrahmi in Gujarati, Brhmi butti in Panjabi, Obdelaga and kodangal in Kannad, Brahmi in Marathi, Talkudi in Oriya, Bullarai in Tamil, Ghodtappa in maithili, Babhanian in Magahi, Babhanian Ghas or Babhanian sag in Bojpur, but in Arabi, parcian, Russian, Japanese, Chinese, German, French, Spanish, Jawes, Latin American and in some other important languages the nick name of this plant is yet to be explained here.

This plant is a small creeping herb with slender reddish green or crimson reddish green weak stem clearly differentiated into nodes and internodes growing parallel to the ground, root and orbicular kidney shaped long petiolated leaves are originated from petiolated the each and every node. Margin of leaf is crenate, flowers are pink in fasciated umbels so this is the region plant is placed in the umbeliferae family (40 spp) of these plant are found around the world. Some other genera of these family or *Eryngium* (200sps), *Pimpinella* (200sps), *Ferula* (100sps), *Peucedanum* (100sps), *Hydrocotyle* (100sps), *Daucus* (60sps), *Carum* (30sps), *Oenanthe* (40sps), are reported so far. Some economically important common plants in our locality—

1. *Coriandrum sativum*
2. *Foeniculum Vulgare*

3. *Trachyspermum ammi*
4. *Carum capticum*
5. *Daucus carota*

Whole plant parts are used as medicine for human welfare, taste of leafy lamina is bitter due to its ingredients or chemical constituents of leaf, plant contains—Alkaloids (Brahmine, Herpestine, Bacosides A and B) (Bacoside A contains Arabnosilglucose, Arabnose, Becogenine, Betulic acid, D-manitol, Stigmasterol, β -Sitosterol and Tanine) Green leaves contains:- Glucosides, Volatile oil, Dry parts contain:- Centoic acid and centalic acid. Whole plant also contain Pectic acid, Valerin, Resin and Ascorbic acid. Due to these chemical constituents its actions as stimulant, anti amobebic, insecticidal brian toni, Rejuvenator, Diuratic, blood purifier, Anti leprotic as well as wound healing properties are absorbed .

So, the plant is used in:- Skin diseases, diseases of nervous disorder improvement of memory power, leprosy, Tuberculosis, Anaemia, cough, fever, Asthama, increases blood protein and RBC, Respiratory stimulant hepatoprotective, hypotensive and wound healer also.

Now in these days this manifold multi purpose small plant is listed in Red Data Book of indanger species it is a short day plant and hygroscopic in nature it flourishes in clean weedles loam soil with organic approach. It is never seen in polluted areas like the sewage or around the domestic drain. It is observed that the usually retarded growth on same soil where plant is growing for a long duration, it means plant should be provided at a time sandy soil, loam soil as well as clay. Its delicacy and heliophobic nature makes this plant unique. Agricultural point of view about



25,000 rupees to 30,000 rupees per hectare per annum a farmer can obtain from this crop as a net profit .A very poor common man or woman can also obtain 350 to 400 rupees from 10X10 ft area farming of this crop without any cost

Some health tips:

1. 2-4 leaves chew or masticate daily early in the morning for good health.
2. Fresh leaves of brahmi with ghee or madhu(honey)use daily for increasing memory power.
3. Fresh powder of leaves are usefull in insanity and mental weakness
4. It controls jaundice
5. Its leaf paste is used in skin diseases even in leprosy

Manthan

Besides the ayurvedic literature brahmi is a popular brain tonic recognized by Shanthikung, Haridwar, Swami Ram Dev ji, NBRI, CDRI, CIMAP, and some other labouratories and organizations of India and abroad This plant is adopted by Shraddha Suman Sansthan of Patna

So,The general secretary and treasurer Mr Sanjay Saurabh of Shraddha Suman Sansthan is humbly requesting to all the readers to use this plant sustainably propagate and distribute it properly because it is indangerous species so we should conserve it for the betterment of human kind as well as the betterment of envornment for future generation.

NOTE: One can easily obtain this plant from Shraddha Suman Sansthan without any cost.





R&D—Some Priority Areas for India

I.R. Sharma

Blog: <http://drishtikona.com>

Scientists will also face challenges in restoring a clean environment by replacing fossil fuels with renewable energy from the sun, wind and nuclear systems. According the former president, Abdul Kalam, some of the future tasks for the scientists and technocrat are:

- Evolution of a Unified Field Theory, which may be the ultimate of physics, by revealing how the universe is born and how we are born;
- Evolution of an alternate habitat for mankind by the scientific community of today and tomorrow;
- Evolution of an Earth-Moon-Mars complex to bring to the earth new material like Helium-3 for the generation of solar power;
- Evolution of a clean atmosphere by replacing fossil fuel with cost-effective renewable energy systems, leading to energy independence;
- Exploring the human body, particularly gene characterization through the proteomics project for developing gene-based drugs;
- Enhancing the foodgrain output from the present nearly 230 million tonnes to 380 million tonnes with reduced land, water and number of people working in farms through the use of technology;
- In the area of communication, a big revolution is setting in. High-bandwidth mobile wireless is in the offing. This will result in mobile phones becoming a convergent system for multimedia applications for meeting the needs of communication in office, home and on the move.
- Rural development through the provision of urban amenities in rural areas (science and technology as the focus);

Generation of nuclear energy through Thorium-based reactors.

I think India must take up the innovations as a means to be competitive globally. There must be clear-cut emphasis of a large number of researchers to help out with designing and developing products that some entrepreneurs can easily manufacture and sell to billions of the consumers of the world. If India is to be in competition with China, it must think in that way. Even with \$1 or Re 1 as margin for some unique product that is essential for each household, one can imagine the business with billion or more who would buy it in the world. Can India's innovators and or entrepreneurs take such challenge?

Some priorities may be:

Biodegradable plastics or finding a eco-friendly substitute to do away with the plastic bags popularly used that is damaging the environment and causing damage to many living beings too.

Anything to enhance the efficiency of the renewable energy: very large scale solar thermal to steam as the answer to coal fired plants for generating electricity, and storage to keep providing electricity at night.

To cut down energy requirement in appliances used by the households, be it computers, water purifiers, air conditioners, heaters, or microwave ovens or electric ovens.

Improving fuel efficiency of all the engine driven mechanical prime movers used, be it diesel pumps, tractors, cars, commercial vehicles, a lawn mower, or diesel generators used for domestic or industrial requirement including railway engines.

There can be many areas for innovations. For instance, rural women get exposed to hazardous toxic emissions and smoke from burning biomass like wood, crop waste and



animal dung during cooking. As reported, Envirofit International, a US-based non-profit organization, has introduced a range of clean burning biomass cook stoves that reduce toxic emissions by as much as 80%, while using 50% less fuel and reducing cooking cycle time by 40%. The stoves are now being made available in more than 700 villages in Karnataka and 300 villages in Tamil Nadu. Should it not be considered a great innovation?

As Thoman Friedman says in his new book, the country that can innovate the most in the areas for clean energy can lead the world. With a total of \$148.4bn investment in clean energy companies and projects worldwide during 2007, it is but very true. Indian innovators do have this opportunity to establish their leadership globally, if they can come out with breakthroughs.

Another area for innovation is the waste elimination or reduction in every thing that we produce and consume. Innovators are to make a breakthrough with some nanotechnologies that can produce parts from reconfigurable atomic parts that can be easily recycled or transformed to some other products if so wished.

The list of the products that received 'Popular Mechanics' Breakthrough Awards are the examples of what are being wished by the consumers and the society at large. Thousands of Indian researchers working in colleges, workshops, and laboratories will have to emulate such an innovative instincts and interests.

- The M-Spector Digital Inspection Camera, from Milwaukee Tools, is designed to give people trying to do home repairs a way to see behind walls without cutting holes first. It costs \$259.
- The Livescribe Pulse Smartpen allows its owner to take notes on special paper while simultaneously recording audio. By tapping on a specific section of notes on the paper, users can get a playback of that section of audio. It can also perform simple

language translation as well as other functions.

- Potenco's PCG1 power generator allows anyone to power up small devices like mobile phones with their hands. Pulling on the unit's cord for two minutes provides 40 minutes of power-up.
- Intel's Atom processor with a low-power chip that is designed to give high-performance capabilities to mobile devices and light laptop computers.
- The Craftsman Nextec Multi-saw gives buyers a combination jigsaw and reciprocating saw. A 12-volt lithium-ion battery that can drive the unit to cut in a variety of places difficult to reach by any single tool, powers it.
- Microsoft's Photosynth, free software from Microsoft that allows users to create a browsable 3D model based on a series of related photographs. The software stitches the pictures together, creating the model based on overlapping elements of the images.
- Amazon's Kindle, the e-book reader from the famous online bookseller, the Kindle allows users to read books, newspapers and other documents on a thin, light digital device. It is sparking innovation in e-readers.
- Infiniti's Around View monitor, designed to give drivers a 360-degree view around their cars while parking. The system features a series of ultra-wide-angle high-resolution cameras that produced images that are aggregated to give the driver a top view of the car and the area around it.
- The Caroma Profile dual flush toilet that pipes gray water from a bathroom's sink into the toilet's tank, cutting down on water wastage.

Two of the individual awards have gone for real useful works of innovation for the deprived class.



Amy Smith, a senior lecturer at MIT won the Breakthrough Leadership Award for research into water purification and both boosting the quality of medical care and reducing daily work burdens of rural women. According to Popular Mechanics, “she is leading a movement to tackle complex problems with simple technology.” I wish more and more professors in engineering and management institutions devoted significant time on research and development that helps the majority of the people in society to improve their quality of living. Water purification is certainly one such item. An affordable appliance must be available in every household in India that provides safe water.

Rudy Roy, Ben Sexon, Daniel Oliver, and Charles Pyott, the co-winners of the Next Generation award are the graduates of Caltech and the Art Center College of Design. The four have made names for themselves with a technique that makes wheelchairs for

residents of third world countries out of inexpensive bicycles. One major benefit of their innovation is that the wheelchairs can be repaired in any bike shop, unlike normal chairs. I end this story with two simple mechanical household implements that I find in Anand’s house. One is the toilet cleaning brush and the other a picker for Bart’s shit. I find them innovative and useful for every household. Hundreds and thousands of simple mechanical and electrical appliances and other products are being developed and sold all over the world that makes good business. For winning the game of global competition, Indian in thousands, may be millions, must be entrepreneurs and innovators. Indians will have to be manufacturers. India must manufacture and not go for importing everything from China-the global factory, as US is doing. If China can do, India can also do with the advantage of similar huge domestic market. And the education at all levels must help Indians to go that way.





India's Trading Arrangements in SAARC region

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South Asia is one of the poorest regions in the world accounting for one fourth of world's population but with a gross national product of only 3.4% of the world's total. As a term 'south Asia' has been in use only for past five decades, it is the Indian sub continent that has been in longer use. The American studies programme popularized the use of term South Asia. The south Asian countries share common historical bonds, social & cultural identities and economic- political strategic interest with a desire to live in harmony and co- operation.

South Asian economies have found the expression of their regional aims in SAARC. The south Asian association for regional co-operation (SAARC) was established when its charter was formally adopted on 8 December 1985 by the heads of states of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri lanka. During 13th SAARC summit in Bangladesh at Dhaka, Afghanistan was included as a new member states.

Statistical data for India

Population in million	1,094.58
Area (km) ²	2973,190
G.D.P.(Constant 2000\$ in billion)	644.10
G.D.P. per capita (Constant 2000\$)	588
Marchandise & serviceexport (% of world)	2.34
Applied trade weighted average tariff (%)	14.76

Completing 1st phase of SAFTA

The road to accelerate development in south Asia is through the SAARC's economic Agenda in general and quick progress on SAFTA in particular. SAFTA can be considered as a

dynamic instrument for stimulating intra-regional investment and trade. The SAFTA agreement came into effect on 1st January 2006 with aim of reduction of tariffs for intra-regional trade among the member countries of SAARC. Tariff concessions under the article 7 of the agreement are effective from 1st July 2006 with the exception of 1st August 2006 for Nepal. Pakistan and India are required to bring down their tariff to 0-5 % by 2013, Sri Lanka by 2014 and Bangladesh, Bhutan, Maldives and Nepal by 2015. India and Pakistan has 884 and 1183 sensitive items respectively. The first phase of the agreement was over in December 2007. Tariffs are to be reduced in two equal annual installments, to 20 % for India, Pakistan and Sri Lanka and 30% for Bhutan, Bangladesh, Maldives and Nepal. Non-LDC's (India, Pakistan and Sri Lanka) would reduce tariff on a margin of preference basis of 5% per annum. The second phase of SAFTA was started in January 2008. In this phase the LDC would reduce tariff to 0.5% within 8 years and non-LDC would do the same within 5 years. SAFTA will fully implement in 2016.

India: Global and Regional Trade

India accounts for about 76.6% of total population and 73.3% of total area of SAARC with the support of its manpower; India has attained virtual self efficiency in the production of component and equipment for power generation, textiles, construction, automobile, Electronics, chemicals and pharmaceuticals.



**Table1: Trade and Development Index:
Global ranking**

TDI Rank 2006	Country	TDI Score 2006	TDI score 2005	TDI Rank 2005
60	Sri Lanka	478	477	55
86	India	433	413	88
102	Bangladesh	397	400	96
103	Pakistan	395	381	106

Source: United Nations publications ISSN 1817-1214

India's superiority in the industrial sector has made it a low cost producer of several categorized goods product in the SAARC region. Due to India's larger industrial base, Indian companies are obtaining most of their value adding-inputs from cheap domestic source.

The European Union countries are India's largest trading partner. India's import from these parts of world is much higher than that of the SAARC region. This is because of some factors like the issue of payments and lack of trade related facilities. Formal banking facilities are not only inadequate in the region but also very time consuming. Traders have to wait for several days before their payments can be released.

The inadequate transport and transit systems that have been in existence between India and her neighboring countries have led to high transportation costs in the region. One major hurdle in road transport between India

and Bhutan is the temporary blockages due to landslides. In the case of trade between India and Nepal, the terrain in Nepal makes building and maintaining roads not only difficult but expensive as well. Even with respect to transit modalities several bottlenecks have been identified: port congestion, excessive documentation, delays results low percentage for trading.

India's share with SAARC countries of its total trade with world rose to 3.32 percent in 2003-04 from 1.50 percent in 1990-91. Export and import grew by 16.46 and 11.12 per cent, respectively, from 1990-91 to 2003-04.

India's import from SAARC countries is quite low. It was just US \$ 56 million in 1975 which grows to only US \$ 105 million in 1984 and further to only US \$ 182 in 1995 again it goes down in 1993 at about US \$ 96 million only. India's trade liberalization policy shows a record growth of its import from SAARC countries in 2000 for US \$ 363 million. India's total trade with SAARC members was US \$ 382 million in 1985, which increased up to US \$ 1714 million in 1995; again the trend goes upward to US \$ 2368 million in 2000. India's trade with SAARC region goes up to 19% for the year 2006-2007 according to an analysis by PHD chamber of commerce and industry (PHDCCI).



Table 2: Shares of Group / Country in India's Export

Group/Country	Per cent share	
	April-January	
	2006-07	2007-08
1. OECD countries	41.2	39.4
A. EU	20.3	20.6
<i>Of which:</i>		
1. France	1.7	1.6
2. Germany	3.1	3.2
3. UK	4.4	4.4
B. North America	16.0	14.1
<i>Of which:</i>		
USA	15.1	13.3
C. Asia and Oceania	3.4	3.0
D. Other OECD Countries	1.5	1.6
2. OPEC	16.6	16.7
3. Eastern Europe	2.0	2.1
4. Developing countries	40.0	41.5
<i>Of which</i>		
A. Asia	29.6	30.5
(a) SAARC	5.1	5.5
(b) Other Asian Developing countries	24.5	25.0
<i>Of which</i>		
People's Rep of China	6.4	6.1
B. Africa	6.9	7.8
C. Latin American Countries	3.5	3.2

Source: Calculated from DGCI & S data.

Table 3: Shares of Group / Country in India's Imports

Group/Country	Per cent share	
	April-January	
	2006-07	2007-08
1. OECD countries	32.8	32.3
A. EU	14.3	14.1
<i>Of which:</i>		
1. France	1.2	1.2
2. Germany	4.1	4.0
3. UK	2.3	2.2
B. North America	6.4	6.6
<i>Of which:</i>		
USA	5.7	5.8
C. Asia and Oceania	6.5	6.2
D. Other OECD Countries	5.6	5.4
2. OPEC	31.3	31.1
3. Eastern Europe	2.5	2.3
4. Developing countries	32.9	33.9
<i>Of which</i>		
A. Asia	26.1	27.1
(a) SAARC	0.8	0.8
(b) Other Asian Developing countries	25.3	26.2
<i>Of which</i>		
People's Rep of China	9.5	11.6
B. Africa	3.9	4.4
C. Latin American Countries	2.9	2.4

Source: Calculated from DGCI & S data.

In rupee term it has increased by 17% Rs 10,396 crore. Sri Lanka has emerged as India's largest trading partner (Sri Lanka-India have already free trade agreement before signing of SAFTA) in SAARC. With a growth of 64% in bilateral which stood at Rs 4,304 crore during the period, the island nation has tapped the potential of the Indian economy to its own economic advantage. The share of top five items in India's import from SAARC countries is around 53 per cent, while the same for Pakistan is 71.2 % and for Bangladesh 73.8 per cent.



Table 4: Direction of Imports: Imports by Regions and Countries

Countries/Regions	2004-2005		2005-2006		Change (4) over (2)	Share (Per cent) (7)	April-Sept. 2005-06		April-Sept. 2006-07		Change (10) over (8)	Share (Per cent) (13)
	(US \$) Million (2)	(Rs. Crores) (3)	(US \$) Million (4)	(Rs. Crores) (5)			(US \$) Million (8)	(Rs. Crores) (9)	(US \$) Million (10)	(Rs. Crores) (11)		
(1)					(6)							
III. ASIA AND ASEAN	40,362.15	181,353.20	50,155.32	222,055.17	24.26	35.22	24,638.45	107,542.42	54,302.70	249,361.26	120.40	62.17
(a) South Asia	997.19	4,480.53	1,397.30	6,186.32	40.12	0.98	651.63	2,844.27	766.34	3,519.10	17.60	0.88
1. Sri Lanka Dsr	378.4	1,700.19	571.69	2,531.06	51.08	0.40	277.41	1,210.87	266.51	1,219.25	-4.29	0.30
2. Nepal	345.83	1,553.86	739.96	1,682.21	9.87	0.27	183.77	802.13	140.45	644.97	-23.57	0.16
3. Pakistan Ir	94.97	426.74	177.48	785.75	86.87	0.12	84.66	359.53	148.61	682.41	75.53	0.17
4. Bangladesh Pr	59.37	266.77	118.76	525.78	100.03	0.08	45.61	199.09	128.22	588.79	181.10	0.15
5. Bhutan	71.00	319.03	88.85	393.39	25.14	0.08	39.34	171.71	55.08	252.85	39.97	0.08
6. Afghanistan Tis	47.01	211.20	58.58	259.37	24.63	0.04	19.95	87.07	27.01	124.02	35.39	0.03



Table 5: Direction of Exports: Exports by Regions and Countries

Countries/Regions	2004–2005		2005–2006		Change (4) over (2)	Share (Per cent)	April-Sept. 2005-06		April-Sept. 2006-07		Change (10) over (8)	Share (Per cent)
	(US \$) Million	(Rs.) Crores	(US \$) Million	(Rs.) Crores			(US \$) Million	(Rs.) Crores	(US \$) Million	(Rs.) Crores		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
III. ASIA AND ASEAN	41,347.5	185,780.3	49,776.3	220,377.0	20.4	84.46	23,060.19	100,635.58	30,883.21	141,817.54	33.92	50.42
(a) South Asia	4,606.1	20,696.1	5,495.3	24,329.4	19.3	5.35	2665.77	11,635.59	3,312.62	15,211.77	24.27	5.41
1. Sri Lanka Dsr	1,413.2	6,349.7	2,018.5	8,936.5	42.8	1.96	1,038.52	4,532.94	1,147.60	5,269.85	10.50	1.87
2. Bangladesh Pr	1,631.1	7,328.9	1,632.4	7,227.4	0.1	1.59	773.13	3,374.56	806.63	3,713.29	4.59	1.32
3. Nepal	743.1	3,339.0	859.4	3,804.9	15.6	0.84	412.45	1,800.27	468.54	2,151.56	13.60	0.77
4. Pakistan Ir	521.1	2,341.2	681.9	3,018.8	30.9	0.66	288.39	1,258.68	749.87	3,443.43	160.04	1.22
5. Afghanistan Tis	165.4	743.3	136.8	605.4	-17.3	0.13	64.91	283.3	76.93	353.25	18.52	0.13
6. Bhutan	84.6	380.0	99.1	438.9	17.2	0.10	52.19	227.8	27.32	125.45	-47.65	0.04



India's trade with SAARC countries was concentrated around a few items, though the share of manufactures in total exports has recorded a phenomenal rise during the period from 1998 to 2003 the share of top five items in export to SAARC is around 48.5 per cent. The share of top five items in India's export includes cotton yarn fabrics (21%), transport equipment (10%), rice (9%), Machinery and instrument (6%), drugs and fine chemicals (5%).

India's Trading Arrangements

Since 1991, the Indian economy has been undergoing constant and drastic economic reforms. These reforms have resulted in a shift from the inward-oriented policy of the past to an outward-looking one. Although this process of reform had started in the mid-1980s, it suffered interruptions a few times owing to an over-cautious approach and several other factors. A long-term trade policy, for three years, was announced in 1985 by the government and some concrete steps towards liberalisation were taken within the framework of economic reforms. Presently, the two main documents namely, (a) Export and Import Policy, and (b) Handbook of Procedures, summarise the policy, process and procedures of export and imports for five years: April 2002 to March 2007. The import and export policy determines in great detail the import procedures that are applicable to specific products, license, importers entitlement as well as other details relevant for the imports of goods and commodities. India had taken bold initiative to boost the trade within the region by unilaterally lifting all quantitative restrictions maintained on balance of payments reasons preferentially for SAARC countries from August 1, 1998. Over 2000 products from the restricted list were placed on OGL for SAARC countries, substantially enhanced their access to the Indian market.

As sub-regional co-operation is permitted by SAARC, India is expanding its regional trade by effective mechanism of economic cooperation through sub-regional cooperation, more specially, the Growth Quadrangle (BBIN-GQ) of Bangladesh, Bhutan, India and Nepal. A project led approach to cooperation and communication, energy, trade and investment facilitation and promotion. These projects are supportive of complementary to the national plans of the four concerned countries. The Asian Development Bank has funded these projects under framework of sub-continental growth quadrangle. During 2-3rd April 2007, 14th SAARC summit at New Delhi on, Indian prime minister announced that "As the largest country in the region, India is ready to accept asymmetrical responsibilities, including opening her markets to her South Asian neighbors without insisting on reciprocity. Before the end of the current year, India will allow the Least Developed Countries among its South Asian neighbors duty free access to its markets. It will also further reduce the sensitive list in respect of these countries."

Trade promotion by Embassies

The Indian embassies attach importance to trade promotion work as a part of the focus on economy diplomacy.

Indian and foreign businesses are invited to contact the **Indian embassies** for information and support.

The embassies provide the following services and support to Indian business

- Provide general market information as well as specific information on products, companies and statistics
- Facilitate contacts and meetings with importers, exporters, trade and industry associations and government authorities
- Guidance about business practices and strategies
- Business libraries of the missions have catalogues and directories



- Some missions have business centre, which are available for meetings and use by visiting businessmen and delegations
- Some missions have published business guides and market surveys for specific products.
- some missions can help in hotel bookings, engagement of interpreters and such other requirements.

The embassies offer the following services to foreign business:

- Provide information on India; and the opportunities for investment and business with India.
- Facilitate contacts with Indian Government, business and Chambers of Commerce and industry
- Provide list of exporters, business directories and statistics

India has regional trade agreement with all the member states of SAARC except Pakistan. Despite of that, economic co-operation has been improved between these two states. Some of the conflict point between them has to be solved. Pakistan has not granted most favored nation (MFN) status to India, where as the later has given such status to imports from Pakistan.

Addressing to the SAARC business leader's conclave at Mumbai on February 2007, the World Bank managing director Graeme Wheeler said that "India-Pakistan trade has the potential. To cross \$ 9 billion in next five years from the current \$ 1 billion if barriers such as inadequate infrastructure, corruption, and red-tape are addressed." It is estimated that informal trade between these two countries is 4 times higher than that of the official trade. Bilaterally, INDIA has free trade agreement with five member states of the SAARC. Inaugurating a seminar at New Delhi on 21st November 2007, Mr. Jasiram Ramesh, minister of state for commerce, announced that " India would undertake a review of the 744 items in sensitive list of

export (largely in the area of agriculture and textiles), adding, that "we are currently working on a review of the negative list particularly with regard to least developed countries in the south asian region– Bangladesh, Bhutan, Nepal, Maldives, and Afganistan."

Being a full-fledge member of SAARC, Afganistan's economic engagement with India will receive a major boost from this year (2008). Afganistan will receive the benefit of zero import duty by India on 4536 tariff lines. It is estimated that India-Afgan trade would rise from US \$ 1 billion in the next five years.

Responding to the observation by Dr. Amit Mitra, secretary general, FCCI, Mr. Jairam Ramesh said that investment is the key to increase trade in the region. "what we need to import, you don't export." This is true to the letter.

Complementarily between the trading partners is an important factor for growing up of trade–data among them. Trade complementary exist when supply capacity of a particular country matches well the demand capability of the trading partner and the supply capability of the trading partner matches well with the demand potential of the former. The associated chambers of commerce and industry of India (ASSOCHAM) suggested that future projections of trade could be achieved if trade competitiveness among SAARC countries was turned into "trade complementaries" for which political will of all countries was essential. In a statement issued by the ASSOCHAM president at New Delhi on December 2005, he proposed that trade complementary could be created by way of setting up joint ventures in SAARC region in which the interest of each partner should be equally protected. ASSOCHAM also maintains that though there were many trade reforms in the SAARC region, and most SAARC countries have liberalised trade in the recent years, the proportion of intra-regional trade is still quite modest. SAARC countries



export more or less, the same set of goods, mainly primary agricultural commodities like jute, tea, cotton, and textiles, garments. Now, by gradual change of time, horizontal specialization within industries has emerged. Therefore, potential for complementary trade has been increased among them. So there is more scope for intra-SAARC trade, especially with India. Emerging as a major producer of life based materials and information technology service.

Conclusion

Now, India is concentrating to grow-up its regional trade by co-operating its immediate neighbours, as they are also the SAARC member states. As a member of SAARC, India is unilaterally helping its member states by liberalising its foreign trade policy to attain the aim of SAFTA. During the 14th SAARC summit at New Delhi, Prime minister of India announced that “as an immediate step, India is announcing a unilateral liberalization of visas for students, teachers, professors, journalists and patients from SAARC countries. Let us aim to double the intra-SAARC flow of tourists in the next five years. Increase in the flow of tourist will create the possibilities of employment in the region. India also hopes that difficulties related to the full operationalisation of SAFTA will be

resolved and that all member states will be in full compliance of SAFTA provisions in letter and spirit.”

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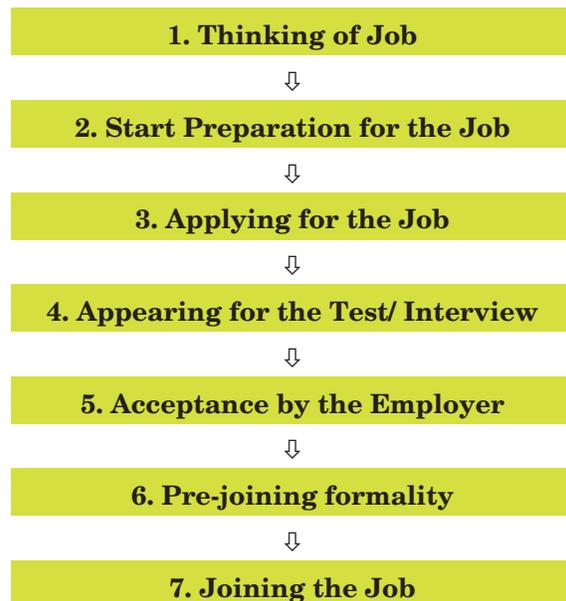


How To Get A Job?

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The next level after attaining educational career is to get a *good job*. A job is recognized as a *good job* depending upon the individual preferences; may be in terms of money, location, company, employment benefits and lots of other things. In this IT-enabled age, to get a job is not a problem but to get a *good job* is. These days everyone is willing to attain a good career. At the same time everyone is also trying their level best to score the desired type of job. This desire keeps changing like one's dream. Once they join the job, in a few days they start thinking for another level of job in their mind and start proceeding toward it. This journey of conquering the desired job can be incorporated in following 7 – steps.

Steps to get desired job: A diagrammatic view



Elaboration:

1. Thinking of Job: Whether you are recent pass out or switching over your job, you first think of your *target job*. *Target job* is the job, which suits your professional or highest qualification most and will provide you good job-career growth. Growth will be in terms of the work-place of a good company where you will get an opportunity to work and other employment benefits. So, this is the initial step of one's job – career path where one has to take nice decision after taking proper guidance from the domain expert.

2. Start preparation for the job: This is second stage of job – career path which emands one's firm determination and dedication to stride on job – career path. This is the stage where one needs to start preparation for the job on *war – level*. One should have determined one's mind in such a way that will only complete after attaining the *target job*.

3. Applying for the Job: This is the third step and can go parallel with the step 2. Even if step 2 is completed 60 percent, one can start applying for the job because there will be good gap time to prepare completely between applying the job and appearing for the test (step 4). The time when preparation gets completed to 60–70 %, one must start applying for the job. This stage of preparation is the ideal time for sending job application.

4. Appearing for the test/interview: This is the 4th step and very crucial in nature. Here, first of all one has to know which kind of test will be taken by the employer. Before going for this step, try to know about the test, its mode, test rounds, timing, slot duration & timing for different rounds, total duration and possible day of completion.



After knowing this one can start preparing on different facets of test considering the test pattern and type. At this point one should have some knowledge of the company where one is going to appear for the test or interview. One should prepare a list of one's queries which can be asked at proper time of test or interview.

5. Acceptance by the Employer: Employer will accept the real candidate, who has performed well and best at the test or interview as well as well-suited for the nature of job. Employer moves fast to grab such kind of candidate because they know they grow faster after imbibing such candidate.

6. Pre-joining Formality: This covers all the formalities which should complete before one's joining to the Employer like background check, reference check, and medical check-up.

7. Joining the Job: This is the final step of one's job-career path and the step, which gives immense pleasure and career breakthrough to the real job hunter.

As given above each step of job search journey is of immense importance and significance. It is like a ladder to go up stair. To complete job search journey, each step should be considered as an important step and reached properly otherwise they will be possibility to fall down. These days, numerous related resources are available in the form webpage and CDs. Considering the career need of our youth and unguided people, Jyoti Consultant (www.jyoticonsultant.com) made an effort to extend career guiding hands to these folks. Happy job hunting!





Know your Destination—Australia

Introduction

So here you have selected Australia as your next destination. You have your visa and all the necessary documents ready and you are wondering about your new destination. Australia the most isolated country on this planet offers a unique lifestyle and diverse culture combined with facilities and environment what a developed country has on offer.

Geographical Information

Australia is located in Southern hemisphere and is almost 3 times bigger than India in area. It is a huge country with approximately 90% of its area covered by desert (especially central Australia). Surrounded by water and very close to South Pole (Antarctica) the climate just suits anybody.

Things to Know before Landing

Visa—Make sure that you have the appropriate and valid visa. Australia enforces the airlines to carry a visa check before taking passengers on board. So if you are flying to Australia at your transit airport (Singapore, Hong Kong, KL, or Bangkok) you will be asked to show your passport and visa.

Eatables—Australia as a country enjoys one of the best quality of health system available in the world and to maintain the standard the Australian Customs and Quarantine is very strict in terms of what you can bring in to the country. Especially Quarantine is very strict here. All plants and dairy products are prohibited and if you don't declare and dispose them before reaching custom then you may be fined heavy amount.

Visit www.customs.gov.au (Australian Customs Service) and www.aqis.gov.au (Australian Quarantine) for further information.

Know Your City—Its always good to know a little bit about the place your are going

to. There are 5 major cities in Australia Adelaide, Brisbane, Melbourne, Perth and Sydney. There is a site which is dedicated to each city specific information. Visit www.citysearch.com.au and select your destination city and it will give sufficient information to know the city.

Find a Contact in the City—Its always good to know someone in the country you are planning to visit. Ask your friends, family, colleagues and see if they know someone who lives in the city or the country. If you are landing in Australia then its always good to know someone who can explain you about the way things work here or someone whom you can call when you have some questions or need some guidance.

Things to Do Upon Landing

Incoming Passenger Information Card—Before you land in Australia the Cabin Crew member will hand out the Incoming Passenger card to all the people on board traveling to Australia. Take time to fill them while you are flying. This will save you time during immigration and you can clear the immigration faster. Remember the wait time at immigration increases exponentially if you arrive late. Because most of the airlines fly a big jet carrying 400+ passengers on board to Australia. It's always good to have the card and passport ready so that you can save your wait time before clearing immigration. The incoming passenger card also contains a section for customs and quarantine. If you are not sure about any question on Quarantine then tick **yes** and let the customs officer know why you put yes so that they can correct the same. Do not disclose wrong information as that may result in heavy penalty.

Public Transport—As a rule of thumb the Taxis are very costly in Australia. But each airport has some sort of public transport



available at a nominal cost. These transit shuttles or Trains can take you to CBD at very low cost. From the City Search website the information about the public transports available in the city can be obtained. These shuttles run frequently 15 – 30 minutes and maintain a high standard for the travelers and are very convenient.

Getting Over the Jet Lag—Remember you are traveling ahead your time. This could result in loss of sleep as midnight in Australia is still early evening in India. You land in Australia either in evening or early morning. If you are landing here in morning then use the overnight flight to get sufficient sleep to keep you going for the rest of the day next day. If you are landing here in evening then **DO NOT** sleep during the flight even though you feel tired. This will help your body clock to adjust faster. Sleep only during the regular hour of your destination.

Settling in Australia

A Contact Number—The first and foremost thing you must do after reaching Australia is to get a pre-paid mobile connection. These connections are quite cheaper starting \$30 and are valid Australia-wide. There is *no extra cost for national roaming* in Australia. So if you buy a mobile connection in Sydney or any other city, it will work anywhere and you don't have to pay for the incoming. There are plenty of Telephone companies who give competitive rates for prepaid customers. To start with you can join either Optus, Virgin mobile or Vodaphone on prepaid card and later when you want to get a postpaid connection you can approach any other mobile provider and retain the old number.

Finding a Place to Live in—If you are new in Australia and do not have any clue where you will be staying. Especially if you are a backpacker or a seasonal traveler. The airports (especially domestic) have a section

where they have brochures available for budget accommodation available within the city. They also have a free phone to call these hotels and find out the availability. Few hotels do have the free pickup and drop facility from airport.

Getting Around—Find out the public transport facility to and from your suburb. There are trains and buses in most of the major cities and they are really cheaper if you buy a weekly or monthly ticket. Don't panic if you do not have a driving license. In Australia you can live without having a car and can rely on public transport for your daily commuting. Every city has a visitor information center located at various places in the city. The staffs are quite helpful in providing the required information. So visit one of those places and ask your doubt. They will give you few booklets to keep handy so that you can refer them for the public transport time table etc.

Part Time Job—Many students want to do part time job while studying. Pls check your visa rules and obey the same. If caught working over the limit allowed, your visa will be cancelled and you will have to return immediately. There are part time jobs available at super markets, petrol stations, restaurants etc. Have few copies of your resume ready so that you can start applying to those places. The salary is on hourly basis and normally happens once a week / fortnight.

Summary

During my stay in Australia I came across many people with lots of questions about living and settling in Australia. Over a period of time I found that it will be good if I put together a document which can provide information about traveling and living in Australia.

In a nutshell Australia is place where an individual can enjoy a relaxed lifestyle combined with diversity which every other culture in this world has to offer.





Diagnostic Mithila Paintings (DMP)

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“Without knowledge, there is no faith,
Without faith, there is no attachment,
Without attachment, there is no significance of
art & love”

Someone believes VAASTU

Someone believes FENG SHUI

Someone should also believe DIAGNOSTIC
MITHILA PAINTING for peace, progress and
prosperity.

Mithila Paintings, also popularly known
by name ‘*Madhuwani Paintings*’, has world
famed reputation. Mithila painting has the
spiritual & cultural power and it incorporates
benefits and fortune. On the other hand,
Classical Mithila Painting is being used in
interior decoration traditionally.

However, Diagnostic Mithila Painting has
been developed from Classical Mithila
Painting but it is based on observational
science by proper selection of imagery sketch
and colour combination with respect to the
consideration of Raashi & Planet along with
objectives to create positive energy for peace &
progress.

History of Mithila painting

Since 1500 BC, There is deep-rooted faith in
Mithila culture that the almighty God appear
invisibly every morning to bless family
members for peace and progress. The female
members of the family do painting on floors
and wall to welcome God. In line with
preparation of painting, the mixture of cow
dung and mud paste is coated and resulted
into antiseptic on surface of floors and walls
thereafter rice paste & colours are used on
improved surface for effective paintings.

In 1934, there was major earthquake in
Mithila, William Archer, the local Collector
along with his wife had visited to study the
damage in Mithila’s villages and eventually,
saw the paintings first time on wall and floor.

They were very much impressed. Having
recognized the beauty of Mithila painting, he
and Mildred, his wife photographed a number
of them and wrote in several publications for
global attention.

Mithila painting is the spiritual & cultural
power. It has inspired me to work on
Diagnostic Mithila Painting. The approach of
my work is somewhat new. Major work is the
concept compatibility with colour,
placement/position, and Raashi. Diagnostic
Mithila Painting is my faith. It delivers
fortune. It does not ensure you for magical
success.

- Mithila is one of the beautiful places in the world. Mithila as the first Aryan Kingdom is situated at present in India and Nepal. An area between Nepal border and the Ganges River in Bihar (India) is Mithila.
- Mithila Painting is an art, & science that creates aesthetic appeal in interior decoration at economical cost.
- Mithila painting comprising of vibrant lines and striking colours projects symbolic, realistic & ritualistic. It is the interaction with nature, spiritual concept & its mysteries. In course of time there are little changes in the basic style. This conserves positive energy in human values, tradition and culture.

Faces of Mithila Painting:

- Painting on floor (Aripan)
- Painting on wall
- Painting on Substrate such as paper/board, cloth etc.

Basic tools in Mithila Painting

Kinds of brushes: No sophisticated tools are needed in Mithila paintings.

1. The tiny bamboo twigs and
2. A small piece of cloth attached to a twig.



3. Fountain Pen.

Homemade natural colours: Natural Colours from Plants like Kusum, Henna leaves, Flower, Bougainvillea, Neem, bark of Peepal & Jackfruits etc. are extracted and then mixed with resin from banana leaves and ordinary gum to make colours sticky to the painting medium. Black was obtained from the soot deposits by the flame of DIBIA (Candle which burns with the help of Kerosene oil) dissolved in gum. GEORE (Reddish powdery substance) is used as colour.

Classification of Mithila Painting

Classical Mithila Painting (CMP)	Diagnostic Mithila Painting (DMP)
The Mithila Painting is classic which project Mithila Art & Culture through painting. It welcomes the invisible God. so it is called as Classical Mithila Painting.	CMP is the mother of DMP. DMP is an observational art & science to create a positive environment to restore positive energies of surroundings with compatible place, colour, zodiac sign etc. through respective paintings. It creates positive impact at home & works stations.

Study about the Relation of Astrology, Vaastu, Colour, and Zodiac with Mithila Painting

The scientific community has begun to accept the fact that the construction of an atom is similar to the solar system. The planets rotate around the Sun in their respective orbits, similarly, the planetary system within our body is just a symbol of the solar system. The planets and stars not only have effect on human beings but also on the non-living things. If the ocean has tidal effect due to moonlight, it can definitely affect a man who is a living being with a conscious mind. Indian

Astrology believes that every member of solar family do project positive colour effect. Diagnostic Mithila Painting takes concept of colour with reference to Zodiac for selection of imagery colour.

Vaastu Shastra is the Science of Direction and Space. In Sanskrit, **“Vaasysthalaha iti Vaastu”** means place of living. Each place in house is allocated as per the need of Vaastu. Proper selection of place & direction has great significance to conserve positive energy. Placement of product at proper place does provide the proper sources of energy. As the numerals have their apparent influence of human life, similarly influence of the directions is also apparent. In VAASTU Shastra, four directions & four sub-directions such as - North, East, West, South, North-east, South -east, South -west and North-west are very important. **Diagnostic Mithila Painting** is placed in house / offices on suitable direction for restoring the scattered energy.

Feng Shui is an art of living in balance and harmony with ones environment. It is an observational science, which is being able to harness or tap the positive energies around us into the home or work environment for our benefit.

As Chinese Feng Shui and Indian Vaastu are being used to enhance or modify the energy flows in the interior design and decor of any modern household or workplace for appearance and amazing achievements, so there is possible result to use mithila painting diagnostically.

Diagnostic Mithila Painting is the transfer of diagnostic image through natural/herbal colour on a substrate in line with the consideration of Astrology, Vaastu and Feng-Shui.

As we know, Classical Mithila Painting is being used in interior decoration traditionally. This also incorporates benefits. However, Diagnostic Mithila Painting has been developed from Classical Mithila Painting but it is based on observational science by proper



selection of imagery sketch and colour combination with respect to the consideration of Raashi & Planet along with objectives to create positive energy for peace & progress.

DMP Evolution—

Work by B. K. Karna & Kiran Karna

Mr. B. K. Karna and Mrs. Kiran Karna have been working on diagnostic aspects of Mithila Paintings for last five years and also resolved some people’s problem through this. They are the first person in the world who started research on diagnostic characteristics of Mithila Painting.

They say...

The approach of our work is somewhat new. We have been working for the last several years dedicatedly. Major work is the concept compatibility with colour, placement / position, and Raashi. Diagnostic Mithila Painting is our faith. It delivers fortune. It does not ensure you for magical success. As we know, Classical Mithila Painting is being used in interior decoration traditionally. This also incorporates benefits. However, Diagnostic

Mithila Painting has been developed from Classical Mithila Painting but it is based on observational science by proper selection of imagery sketch and colour combination with respect to the consideration of Raashi & Planet along with objectives to create positive energy for peace & progress.

Diagnostic Mithila Painting is the transfer of diagnostic image through natural/herbal colour on a substrate in line with the consideration of Astrology, Vaastu and Feng-Shui.

Case studies

- Case 1** A student is willing to develop concentration in study. Which DMP will be suitable for the positive energy of surroundings?
- Case 2** What DMP will be suitable for Professional of a company who wants to keep under his control smoothly?
- Case 3** Can dispute or unhealthy debate be minimized by DMP between Husband & Wife?

Mithila paintings to solve problems

K. PAVAN KUMAR | HYDERABAD

After laughing Buddha, it is now the turn of Mithila paintings to bring peace, wealth, growth and repute for households and commercial organisations. They can enhance your child’s future, arrange marriages and speed up promotions, if you believe. Mithila paintings, also referred to as Madhubani paintings, are gaining popularity as harbingers of peace and prosperity and are adorning walls.

Director of the Indian Institute of Packaging, B.K. Karna, has been doing extensive research on Madhubani paintings and their effectiveness. Karna relates the painting to numerology, astrology, vaastu and the science of colour.

He categorises Mithila paintings as Classical Mithila Paintings (CMP) and Diagnostic Mithila Paintings (DMP). CMP is an art that exhibits the Mithila art and culture, welcoming the invisible God as per traditional belief. The DMP is an observational art and science which strives to create a positive environment to restore positive energies with a compatible place, colour, zodiac sign through respective paintings.

“If a person keeps a Madhubani painting in the northeast corner as per the first letter in

The paintings are done on the floor (*Aripan*), on wall, on materials such as paper and cloth, with tiny bamboo twigs. Mithila women use natural plant and flower extracts to paint a variety of pictures



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problems. “They work on the earth colours aspect. For anything more than that, the colours will have to be co-ordinated individually according to the colour of the room,” she says.

Situated on the Indo-Nepal border, Mithila has historical importance as Goddess Sita’s birth place (Sitamarhi). The paintings are done on the floor (*Aripan*), on wall, on materials such as paper and cloth, with tiny bamboo twigs. Mithila women use natural plant and flower extracts to paint a variety of pictures. Says R.S. Prasad, top executive in Hyderabad branch of a Japanese MNC, Sakata Inx India Limited, “I saw the paintings at Chutney’s restaurant. When I enquired, the management said they selected them for decorative purposes. But, the hotel is doing very well. I have these paintings both in the office and at my residence.”

DMP in the News

Case 4 Which DMP will be effective for pleasant atmosphere in family?

His Suggestion for Mass

A person who is willing to improve interior decoration along with at offices/business places/houses/hotels/hospitals/institute etc. it is suggested to use Diagnostic Mithila Painting.

How to get DMP?

Your need to send an e-mail to with your following details; basically we need your following information to prescribe suitable DMP for you.

1. Name
2. Date of Birth
3. Raashi
4. Planet-Master
5. Problems / objectives

What DMP Group will do after getting your requirements?

1. Discussion with expert
2. Image Selection

3. Colour Selection
4. DMP preparation
5. Delivery of DMP with formal guidance like suitable positioning direction and day.



DMP management people is dedicated to explore the concept on diagnostic aspects of Mithila Painting and also involved with organizing seminar and presentation on it at big hotels, MNCs, management institution etc. On delivering paintings to the received orders, a group of painters are working under the supervision and guidance of renowned artist, Mrs. Mamta (mamta_prakashin@yahoo.com). For details regarding DMP, you can visit the site: www.mithilamanthan.com/dmp.





My observations about South Korea

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Korean peoples are very friendly, shy, loving and the people having good health and character. After getting independence from Japan, Korea had the hard life even for food. Korea has lack of natural resources except man power, non-cultivation lands and rivers. . Just after the independence, it reveals the past history of low salary, poor living standards and lack of money etc. From the Japanese occupation to the Korean War and then to 1997's economic crisis, life of people was quiet miserable and full of calamities. But the country seems determined to leave its troubles in the old century. It has entered the new millennium with renewed optimism. The hard working, sincere, disciplined, industrious, and courteous people have paved the way for the present well developed, prosperous and modern country with a strong economy.

The secret of success of Republic of Korea in one word, is "discipline" and if add some more expressions, it is "hard work and positive attitude." Of course, the richness did not come all of a sudden. Korean people never waste their attention on matters that have nothing to do with their work. They are very respectful to the fellow co-workers. On the first day at my institute when my host introduced me to the other fellow researchers, I was surprised to see that every time people would bow at angle of 90 degree to respond me in a respectful manner. I wondered that they may suffer from chronic backache doing like this. The Korean people say 'Aneonghaseo' to greet you which means same as we say 'Namaste'.

Most of the cars used as taxis are equipped with computer-aided navigation system. This system indicates where your car is and also guides you to reach the destination by the shortest route. It also suggests the alternative path if there is any traffic jam on the way. Road system and vehicles are quite

decent; you would never hear anyone honking the horn. Fast KTX trains with running speed 300 Km/hr are available. In Korea crime is almost negligible. At the night time when traffic becomes minimal and policemen are no-where to be seen, even at that time, people are used to follow the traffic signals obediently. The behavior of police men's is very official not rudely. If you go to the police station, police will stand up and bowing 90° they will tell you annyohasseo (namste), then police will ask you about your problem. During talk they will ask you for tea/ coffee. On road, if you violate the traffic rule, police will first solute you then fine you and again solute you. This is very surprising but I think correct.

Peoples are very careful about the keeping clean every where. They will not throw any thing out except dust beans (better recycling beans). For throwing the house hold waste you have to throw separately the things by using separate colour of allotted bags/pots. You are not supposed to throw the paper or plastic things in the food recycling bin as all these things are recycled and reused. The food waste from the apartments is converted into organic fertilizers. The food wastes collected from the hotels or restaurants is supplied to the cattle farms on demand. Simultaneously, the waste paper, wood, glass, metals will be sent to recycling industries. They do their best to keep the environment clean. You will not find any garbage in Korea. You will hardly find plastic, paper, bottle or wrappers lying in the any public or tourist place. People are so particular about clean environment that if by chance a child throws a chocolate wrapper in the way then the person coming behind him will keep it in his pocket and throw in the dustbin.



Work Culture

I have seen very good co-ordination between educational institution, industries and research laboratories in Korea. Most of the research works are based on the current need of society. Industries are partner with research organization with all steps of development of the process. Educational institute simultaneously collaborate with industries as well as research institute. Students do the work in research institute as part time which is mandatory. They get fellowship for their work and expertise too. It is surprising you will not find big Iron Gate for any institution in Korea. Security system is electronic and perfect. Digital camera is equipped every where in institute and it is

recordable. For emergency all people should support. So, time to time they make practice. Sometime security will make a siren, and all people will run to particular place and after 5 min all will back. It is surprising within 2–5 min all people gathered at a particular place after hearing the siren.

In office there is no bureaucracy. Boss will be very friendly. I feel that is the reason why people works more and output is also high. Generally, people works in office for 10-12 hrs. Beauty is that no body will tell to stay more after office hour. But the culture and environment is like that the people are working hard and stay more in office. Up to 12 P.M. you will find 80% rooms' lights are on and scientists/ students are doing their work.





NRI Experience

Dr. Manis Kumar Jha
S.Korea

If you have true determination, there will be a way

Dr. Ramlochan Pandey was working as a Brain Pool Scientist in South Korea. He has the dream to be a millionaire, when he came to Korea at the cost of life too. He was saving money as much as he can. He never purchased any thing except water and little food stuff. Any way “If you have true determination, there will be a way”, so he got all the home appliances slowly on road. In Korea people throw the used material for dumping on marked place. He was regular customer to visit that place rather than to tourist place which cost money. Even his wife and child spend the life like hell due to his habit at any cost not to expend money. His wife wants the mental cool of his husband so she did not demand any thing during her stay in Korea. Due to mal-nutrition his child was always ill. He has tried to take even child’s medicine from a small dispensary on request, which is strictly for scientists only. Anyway, his contract was going to be finished at the end of year. So, he has started his effort to sale the old used collected material from road in side his house. But, no body was ready because all knows these. Before the 15 days to complete his contract he becomes ill and upset, to think he will loose this all house appliance, which he has collected from road by doing very hard work. Always he was telling to his friend I lost my 1.5 lakh rupees. When people asked he told I have to throw my entire house appliance, which I have in my house. His action was like mad. But no body was ready to purchase his

used old material. Then he went to brocker for giving the charge of that house, brocker told to pay 150\$ for cleaning of house. In Korea there is the rule to vacant and clean your house before leaving the flat. Then he became more ill and weak.

If you have true determination, there will be a way. So, immediately he found two bachelor guy living in bottom flat to his flat. He caught one gentle young guy and told I have much affection with you. I want to give you all free of cost please take before one day of my going back from Korea. In this way he saved 150\$. Now, after reaching India, he was seeing his table chair and many things in dream which he has given to that Indian guy. This was the first loss in his life. In pune mosquito is common so he remember he left a mosquito net there. Immediately, he made a telephone call from his boss room when he was in toilet and told to that young guy please send my mosquito net. That guy told sir you can get this net in Rs. 100 in India but for sending it transportation will be 17 \$ (Rs.680). He told Sir it is not advisable to send. The ex brain pool scientist told I have some historical attachment with that mosquito net. I remember my first marriage night in that net so..please ..please..please send it. I have given you many thing free of cost..will you not save my sentiment.....

The young guy started to think much. He became immotional. Ultimately he went to post office and sent that 100 rupees net to India by paying 17\$. So that scientist succeed to get at least a net from korea so.. *If you have true determination, there will be a way.*





Some Quotes

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Attitude is a little thing that makes a big difference

With every passing day, we realize that attitude is the most important aspect of our personality and probably the most defining factor in shaping our lives. The impact of attitude on life is tremendously powerful. As Winston Churchill says it, "Attitude is a little thing that makes a big difference."

Attitude is all about your personal disposition towards circumstances you are faced with. Most often, we have little control on these situations; however, what we do have control on is our reaction to the same. Could we change our attitude, we would not only see life differently, but life itself would be different!

Attitude, to us, is more important than success, than what other people think, say, or do. It is more important than appearance, than

education, than money, or skill. We cannot change what has passed, what is yet unforeseen or the way other people around us react. The only thing we can do is play on the one string we have, and that is our attitude. We are convinced that life is 10% what happens to us and 90% how we react to it. And so it is with you. The remarkable thing is we have a choice every day regarding the attitude we will embrace for that day.

Thomas Edison tried two thousand different materials in search of a filament for the light bulb. When none worked satisfactorily, his assistant complained, "All our work is in vain. We have learned nothing." Edison replied very confidently, "Oh, we have come a long way and we have learned a lot. We now know that there are two thousand elements which we cannot use to make a good light bulb."

