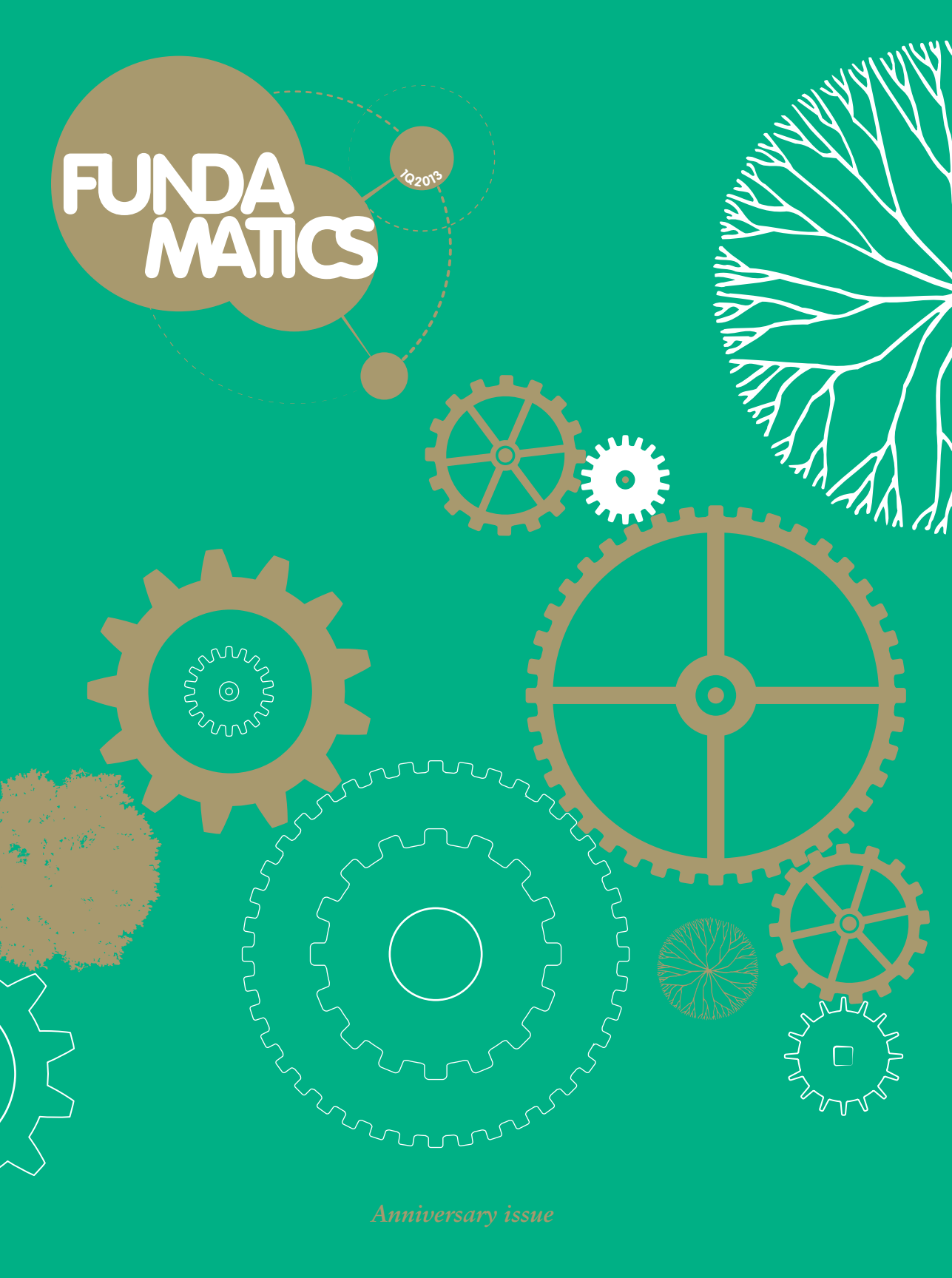
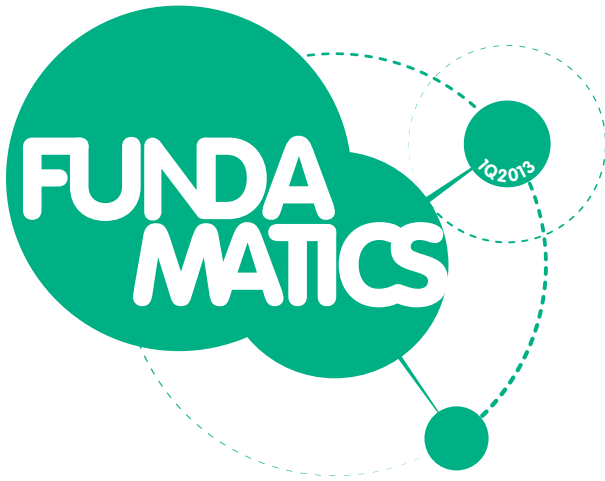


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Anniversary issue



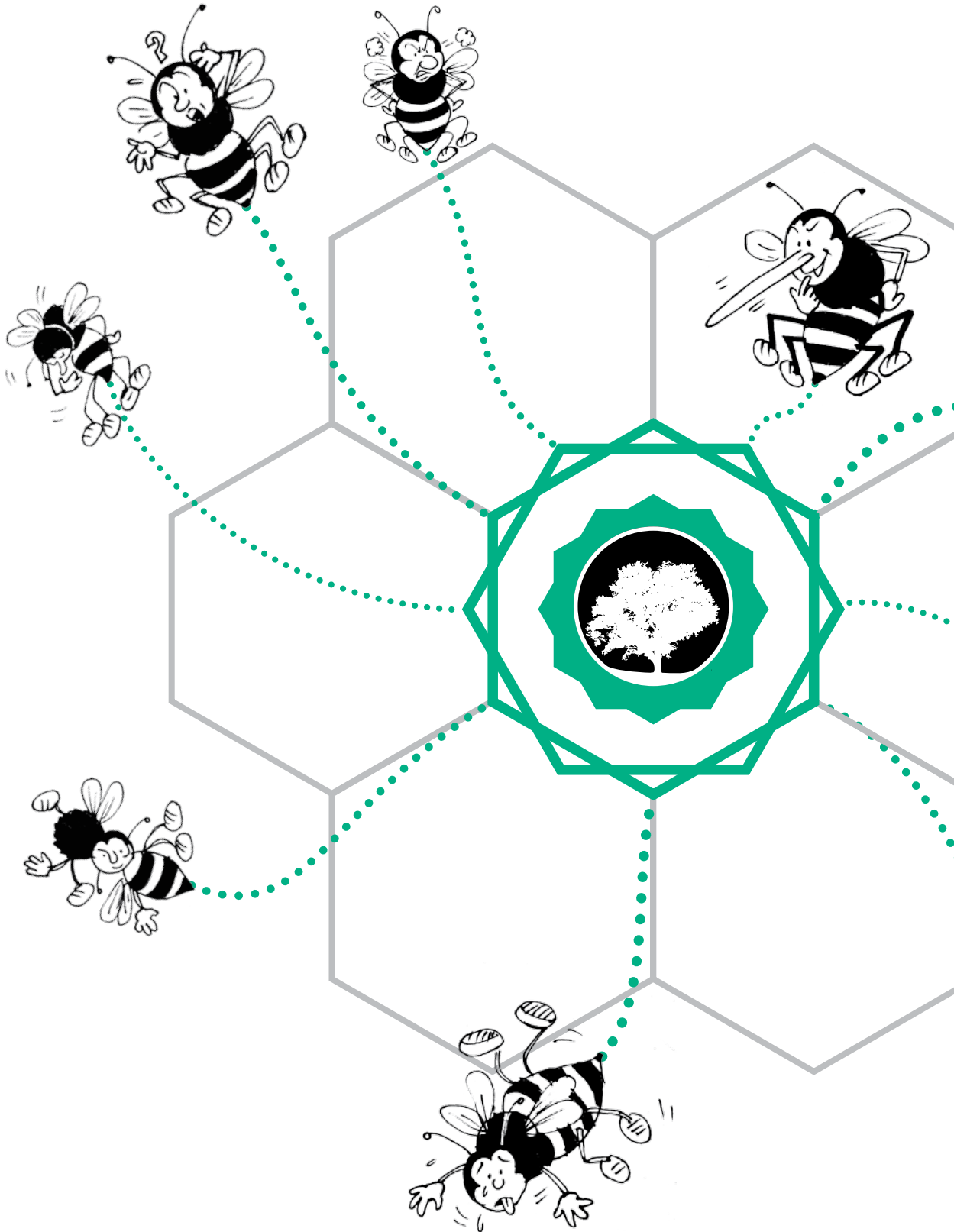
IIT BOMBAY ALUMNI
ASSOCIATION

Quarterly magazine of
IIT Bombay Alumni Association

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Fixing the Future Environmental Challenges



The defining issue of our generation will be humanity's response to the challenge of environmental and ecological degradation and climate change. This belief underpins the decision of the editorial team to focus on the subject as the theme of our second annual special issue.



In an ideal world, environmental problems would move seamlessly to solutions. Scientists, laboring in their ivory towers, uncover an unforeseen threat to humanity. The word gets out, the public agitates, and policymakers implement incentives and regulations. The technology sector responds, devising and disseminating fixes. Unfortunately we do not live in such an ideal oversimplified world. The reality is a messy, intertwined nexus among science, policy, and solutions that characterize the problems of the world we live in today.



Can there be a balanced development for India? Who should join in the journey from environmental problem to solution? The troubled path to India's journey towards sustainability, - what does the future hold? How does one tackle the problem of Climate change or scarcity of water? Who should bear the costs of a cleaner environment? Is it possible for one person to engineer transformative solutions? These are only some of the questions being addressed by the articles of this issue by some of the leading experts

and opinion makers and activists in this field today. Some like Shripad Dharmadhikary, Raghu Murtugudde, are IITB alumni. Others like Ramchandra Guha, Rajendra Singh and Joan Chevalier are not: but represent powerful voices that need to be read and heard. The journey from problem to solution for today's messy, complex intertwined environmental issues makes their opinions all the more urgent.

The annual issue is also known for its breadth of scope and this issue is no exception. Champions of civil society action must read the excellent interview of Aruna Roy and for those interested in IIT Bombay, the issues raised by Alibaba take us to a terrain seldom acknowledged in the public domain.

This issue also has a stellar presence of many of our distinguished alumni lending their voices and their words on a gamut of wide ranging issues, - from innovation to global mega trends, to humor. We also have grumble bee lampooning the government, Stumblebee coming across some interesting stats on why politicians lie about their birthdays. The celebrity quotient got an unexpected fillip with excerpts from an interview with Mira Nair with a review of her latest film 'The Reluctant Fundamentalist'. There are some priceless cartoons as well from the pen of Arun Inamdar and Shreyas Navarre. Shreyas recently had held a exhibition of his cartoons at the Nehru centre which was inaugurated by none other than R k Laxman.

In short, there is something in this issue to cater to every possible taste and I hope it will serve as excellent New Year holiday reading.

Exactly one year ago when we began our journey with Fundamatics our credo was,- the pursuit of failure in setting out to achieve an unreasonable outcome, leads to success!

The first punters we asked for content replied

to our request with massive questionnaires which asked why they should write 500 words for a magazine whose name they did not like and whose concept was delightfully unknown. Didn't we know that they were car designers and we were asking them to drive something that may turn out to be a bicycle?

There were bania concerns too about "rokda kidhar se ayega" while many predicted that alumni do not have time to read and why no one will read our non bullet point mag. There have been many occasions too when the gremlin of last minute SNAFU (Situation Normal All F^%&ced Up) has reared its head. But miraculously we also managed to find alumni who charge into do the rescue act.

The beehive is abuzz and keeps growing as we endeavour to share with you in every issue "kahanis", articles that provoke thought, debate and of course laughter. And every time we felt that we had we had started failing again it only meant success was round the corner.

We are not sure if we have turned the corner yet. We leave that to you to ponder over as we argue, hack and NABAD our way from issue to issue proofing pen on hand, loosing our eyesight in front of the computer and loosing friends who have turned elusive and reluctant contributors. The journey is awesome and we are confident that when we eventually do turn that corner we will all be shouting "woo hoo what a ride"!

Queenbee

Readers Write in

ONE

To team Fundamatics

Let me say point out why I liked the last issue of Fundamatic. For one, the production quality, layout etc is really good. However, it is the contents that are the the key. I can imagine that it is very difficult to produce a magazine for chiefly addressing alumni where the main issue of common interest would be nostalgia. But you can't run a full fledged magazine on nostalgia. Also, the elements of nostalgia for Batch of 1980 would be very different than say for Batch of 2000. The reason I liked the mag is because it has done a good job of having a balance between nostalgia, and issues of current interest. Moreover, current interest is not limited to just issues of technology (indeed, so many IITians have in any case moved away from technology) but you have not hesitated to take up issues that can be said to be political, touching some of the critically important themes for India, and also not hesitated to allow authors to write with their strong stands. That I feel has made the issue very good. Otherwise, you run the risk of having a publication that in mired in only nostalgia and some superficial "goody" voices.

-Shripad Dhamadbikaray, B.Tech. 1985, Mechanical Engineering, Pune

TWO

Dear Friends @ team Fundamatics:

My sincere compliments to you all@team_fundamatics including writers, authors, designers, on a job well done!

The issue that I received was a good reading and did engross myself into the content naturally.

I found the issue with its contents as good as a book / lecture notes (as long as there is no class test, quizzes, submissions, tests, open books..Viva voce etc evals and grades).

Keep up the spirits. Here is one wishing you well! May we all enjoy the endeavours!

Mukund Madhav Dhaygude, MTech 1985-1988, Computer Science and Engineering

THREE

Read Sudheendra's write up on FDI in Retail. Not very clear whether he is against "Organised Retail" per say, or "FDI", or "Organised retail funded thru FDI"?

It appears to be more of a political statement suffering from:

- a. Pride of Authorship, and.
- b. East India syndrome.

To make his argument appealing, he has

simply tried to wrap it up into the typical vote bank politics of “small is beautiful”.

It is without any doubt that organised retail is a welcome value add business enterprise that benefits both the suppliers and the consumers and the ex checker. These values additions do not result into any cost push but comes through curtailment of wastes and inefficiencies in the otherwise procurement, packaging, marketing, and consumption systems. Every one understands economies of scale.

While on FDI we should derive satisfaction that businesses outside consider our country worthy of fixed investments. They are bringing their own money with technology and management systems to create business assets and enterprise here. We are free to devise regulatory mechanism to regulate their operations and withdrawals. FDI is always more welcome than the hot money called FII.

Through value additions in organised retail, which is otherwise going down the drain, these businesses will create additional jobs and prosperity. Some inefficient and burdensome outfits may have to shut shop. But we must trust the entrepreneurial zeal of us Indians to find alternatives.

One may argue that the same can be accomplished thru DDI (Domestic Direct

Investment) also, hence why FDI? Yes it can be done and must be done. But keep in mind the Ambassador / Fiat car days and one will find the answer.

*Tikam Patni, Bangalore, B.Tech. '67 MetE/MatSc, M.S.
'69 IE&OR*

FOUR

Just finished reading the new Fundamentals Issue. Awesome design and content.

Congrats to the entire team. *Regards,*

Arpit Oswal, Dual Degree '12 MetE/MatSc

Balanced Development

Symbols of development for today's generation are the ubiquitous cell phone, the computer, a home with numerous creature comforts, the shining mall, and of course, the automobile. While India crawls to achieve that elusive 'Developed Country' status, there is an ever increasing divide between the fortunate few who enjoy the fruits of progress and the many who aspire for it. Behind the glitter that accompanies this progress lurk good old fashioned dams and mines and power plants. The water and the energy (electricity) needed to drive growth – today's central developmental preoccupation – are to come essentially from these big dams, the coal mines, the thermal power plants. What is being woefully ignored is the price some people have to pay so that others can benefit coupled with the wanton damage to the environment. To the average citizen, these engines that drive progress are invisible symbols of development, and so are the hardships borne by the affected people and the environmental impact.

Past practices continue to be pervasive in present projects. The modus operandi is literally to bulldoze the way to get the job done with no regard for the "collateral damage" to the welfare of the affected people coupled with abject disregard for the environment. This is usually the typical manner in which projects are executed.

Furthermore, promises are broken and as a result there are protests due to skepticism. Those protests are responded to by lathi charges, resulting in death at times.

It is alarming that the people who promote and execute these projects are presumably members of civil society. However, how they proceed amounts to legitimised thuggery driven by extreme "laalach" in the name of progress.

The big question confronting India is whether it is fair to continue on the path of progress on the backs of the marginalised poor who are affected.

In all fairness there are many others in civil society who work continuously to bring such issues in the limelight. One such crusader in the field of energy was Girish Sant. We lost him last year. But his legacy lives on. This year IIT Bombay with the help of the Class of 1986 instituted the Girish Sant Memorial Lecture an important contribution to keeping alive his memory and the inspiration that he created through his work. The institution of this lecture is recognition by his peers – often the most important of all acknowledgements – of what he stood for. The first lecture was delivered by his friend and colleague, Shripad Dharmadhikary. This article is an abridged version of the lecture. The full lecture is available at <http://archive.org/details/1stAnnualGirishSantMemorialLecture-IITBombay>

Bumblebee



Rethinking Growth, Redefining Development

Addressing India's Water and Energy Needs

Shripad Dharmadhikary

The Price of Progress

In early 1994 I, along with Girish Sant visited Singrauli (on the border of UP and MP). We were members of a team that was visiting the area to study the impact of the large number of coal mines and thermal power plants there. Singrauli, back then, was known as the energy capital of India, with a large concentration of coal based power generation capacity. With the Rihand dam and the Govind Ballabh Pant Sagar reservoir at its heart coupled with the many coal mines and pit head thermal power stations, Singrauli was what could be called as an engine of growth.

Of course, the proposed thermal power development in Singrauli region today – with close to 40,000 MW in pipeline – would dwarf the Singrauli of 1994. But that is also the reason why the 18 year old visit is still relevant.

Our team found that conditions within this engine of growth were abysmal. On one hand was the township of the thermal power plants. Entering it, one found broad roads, bright lighting, large gardens and big buildings. It was as if we were in another country. Yet, outside this enclave was the mess and litter of ordinary India.

Thousands of people who had been displaced by the dam, mines and the power plants were stranded in the area without any resettlement, living in colonies without much

infrastructure. They, along with the other residents, bore the brunt of severe air and water pollution. To cap it all, many villages and communities in the area – ironically even those whose lands had been acquired and on which lands now stood power houses – did not have electricity. An unforgettable photo taken around that time by leading photo-journalist Prashant Panjiyar captured this in an eloquent manner. It showed an old man reading a book under the light of a lantern, even as the bright lights of a power plant were shining in the background.

Every period has its symbols for development, of progress, of growth. Singrauli was one such symbol. Big dams like Rihand and Bhakra were another such symbol. Those of you belonging to my generation will remember these being famously described by Nehru as Temples of Modern India. One such temple which has been a work in progress for many decades is the Sardar Sarovar Dam on the Narmada river in Gujarat. I have had the benefit of seeing this project from the inside out, from close quarters, particularly through the eyes of those who have borne the brunt of this project.

Sardar Sarovar project is a massive project with a 120 m high dam located near Rajpipla in Gujarat, whose submergence spreads 214 km behind to include 245 villages in Gujarat, Maharashtra and Madhya Pradesh. Its vast

canal network is supposed to irrigate 1.8 million ha of land, provide drinking water to over 8000 villages and has an installed capacity of 1450 MW. It will displace, officially, more than 44,000 families and have massive environmental impacts.

For years, thousands of people affected by the Sardar Sarovar have been struggling against it, challenging its impacts. This struggle, popularly known as Narmada Bachao Andolan (NBA), is one of the well known mass movements of post-independence India. The fierce protests led by NBA have challenged not only the injustice and inequity of this specific project, but have also raised fundamental questions about the larger model of development that the project represents.

I have been privileged to have been a full time activist of this struggle for more than 13 years, during which time I have lived amongst and shared the struggle of the affected populations.

The Narmada project mirrors what we saw in Singrauli in every way. The Narmada project has seen the complete bypassing of the people in the valley, the promises of large benefits to justify the project, the underestimating of costs and impacts, and pushing it with the use of brutal force.

A Symbol of India's Progress

I am very tempted to talk about the Narmada struggle itself, for it is a testimony to the courage, determination and tenacity of thousands of ordinary people in face of huge odds, including the full deployment of state power and the power of large economic interests. However, that is the subject of another comprehensive article in itself and hence I shall not dwell too much on it. Suffice to say that it has been a long and intense fight, with thousands and thousands of

One of the most important impacts of the Narmada movement has been to create a debate about the very nature of the development paradigm.



people putting everything they have into the movement. Many people staked their very lives, braving rising waters, police repression and attacks from non-state actors. The movement drew support from all over the country and the world. One of the most important impacts of the Narmada movement has been to create a debate about the very nature of the development paradigm. Today, more than 50 years after the foundation stone was laid, the dam and project still remains incomplete, partly due to its own internal contradictions and partly due to the struggle.

Questioning Development

The reason to dwell at length on the experiences of Singrauli and Narmada is that they reveal important reasons why we need to rethink the process of development that they represent and also offer important insights into what needs to be done.

Of course, over the years, the symbols of development may have changed. For today's generation, other things may be better icons of development — the ubiquitous cell phone, the computer, the shining mall, and of course, the automobile. Yet, behind the glitter of all these lurk good old fashioned dams and mines and coal plants, essential to run the entire apparatus of growth - today's central developmental preoccupation

Project Pipeline

A compilation of figures from the Ministry of Environment and Forests showed that as on April 2012, more than 700,000 MW of

thermal power plants were in the pipeline. About 80% of this, or 560,000 MW, was coal based capacity. This is around 4.7 times the existing coal capacity in the country. Meanwhile, various plans to build dams and hydropower projects in the Himalayan states suggest that more than 300 projects totalling about 90,000 MW are in the pipeline.

Further, much of India's surface water use is expected to come from hundreds of large dams built (and to be built) on almost all the rivers of the country. In addition, the massive Interlinking of Rivers project will, if implemented, need more than a hundred large dams to be built.

The Stark Reality

Unfortunately, the reality of all these coal mines, thermal power plants and dams has not changed much from what Singrauli and Narmada have shown. That is why there is an urgency to learn from their experiences. The current development and growth process retains three key characteristics revealed by the struggles around Narmada, Singrauli and others.

First of all, its implementation involves gross injustice. Local communities are bypassed, have little say but often suffer severe impacts including disruption of their lives, livelihoods, culture and even identity.

Secondly, it is often iniquitous in sharing of benefits, and costs. Local communities are mostly left out of the share of benefits. Even when the benefits are to accrue to society at large, the poorest and the most marginalized are the last, if at all, to receive the benefits.

Thirdly, it is based on large scale extraction of natural resources with severe impacts on the environment.

All the above issues require that we need a radical re-look at development and growth

The vision of how to use local resources must necessarily involve, if not initiate from, local communities. In particular, use and allocation of resources like land, water, forests – all key to the livelihoods of the poor-- must be done with the consent of the community.



from three aspects: its process, the sharing of benefits and its very nature.

Participatory Development- The Way Ahead

One of the most important changes that are needed is to meaningfully involve local and potentially affected communities in decision-making processes. The vision of how to use local resources must necessarily involve, if not initiate from, local communities. In particular, use and allocation of resources like land, water, forests – all key to the livelihoods of the poor -- must be done with the consent of the community.

There is some recognition for this, both internationally and nationally, but actual implementation still remains mostly as lip service.

The need for Free and Prior Informed Consent is now an integral part of the international discourse for projects in tribal areas. The World Commission on Dams has recommended it for dams in tribal areas. India's own PESA (Panchayat (Extension to Scheduled Areas) Act 1996) provides for the 'Gram Sabha' to be consulted in Fifth Schedule (Tribal) areas. The proposed new land acquisition law will require consent of 66% of the land owners before land can be forcibly acquired for private projects from the rest. But all this is still very limited. The

meaningful involvement of local and affected communities in decision making needs to be far deeper and more comprehensive.

Some people express a fear that such a process will give a virtual veto to local communities over resource use and can be used either in an obstructionist manner or as a tool to blackmail for disproportionate gains.

Such apprehension is an expression of an

We need to ask ourselves the question – does development have to appear to local communities as an aggressive attack rather than an opportunity for bettering their lot? Why should communities be passive victims (or even passive gainers) and why should they not have a meaningful say in matters that gravely impact their lives?



implicit assumption that local communities do not value development of their local resources, that they are unreasonable. If the community sees – or can be shown – that it is in their greater interest to develop resources in a particular manner (say by building a dam on the river), that they will gain great benefits, then why would they not support it? Of course, in some cases we may see communities refusing projects with great material benefits due to some other reasons – cultural importance attached to a place, for example. But such cases will perhaps be few and, in any case, need to be respected.

We need to ask ourselves the question – does

development have to appear to local communities as an aggressive attack rather than an opportunity for bettering their lot? Why should communities be passive victims (or even passive gainers) and why should they not have a meaningful say in matters that gravely impact their lives?

One of the main reasons why people spend so much time and energy in struggles like the NBA is because it offers them basic dignity. It offers them a sense of being in control of their own lives and resources.

Unless the development process can offer such control and say to local communities, we are going to see escalation in conflicts, and /or escalation in pushing growth with the use of force.

Enshrining Benefit Sharing

As we have seen, large development projects have often bypassed local communities as far their benefits are concerned. Electricity, water, employment – all seem to go to someone else. Benefits accruing to local communities are incidental or limited to a few. That is why it is crucial to enshrine formal benefit sharing mechanisms in development projects. Such mechanisms can ensure benefits to individuals, households and communities. The benefits can be monetary, non-monetary (e.g. electricity) or in terms of common infrastructure.

Apart from it being a part of basic rights, it is clear that sharing of benefits is crucial for achieving local acceptance of a project. Again, there are some welcome steps. For example, the proposed Mines and Minerals (Development and Regulation) Bill 2011 provides for 26% of profits of coal mines to go to a District Mineral Foundation, part of which will be used to make recurring payments to affected people. But such measures are far and few, and their efficacy

remains to be tested.

However, sharing benefits is not only about local communities. Even at the larger level, it is necessary to ensure that benefits from developmental projects and programs go preferentially to the marginalised, the poor and those left out so far. This will require several things. One, it will require earmarking certain benefits for such population. Second, it will require putting in place mechanisms to ensure that this happens.

Furthermore, it will entail taking a re-look at the assumption that economic or GDP growth will automatically address the needs of the marginalized and the vulnerable. Unfortunately, the ground reality does not bear out this last assumption. Witness how, since the 1991 liberalization of the economy, we have had massive increase in the electricity generation capacity and electricity consumed (from about 190 Billion units to 690 billion units annually). Yet 33% of our households are still without electricity.

Currently, a number of developmental projects are justified saying they will help achieve a high GDP growth. The implicit assumption is what the World Bank refers to as (the Bank is fond of coming up with such one-liners) “A rising tide lifts all boats”. But all boats are not equal. There is a need for an unraveling of the GDP growth to see really where the fruits of development are going, and then design policies that will ensure projects and programs that will better target the under-privileged.

Environment and Development

Every human action has an impact on the environment. We cannot have any intervention, any developmental activity that has zero impact on the environment. So the aim has to be to minimise the impact on the environment and balance developmental needs.

There are many problems with the tools and methods being used currently to assess environmental impacts and managing them. The quality of EIAs (Environmental Impact Assessments) is often shoddy. They are prepared more with the intention of securing clearances rather than any consideration for safeguarding the environment and they come very late in the project cycle and hence do not play any role in the decision-making around the project. Such problems need to be addressed.

We, as a society, need to step back and think about what we want our world to be like... Being kinder to the environment may mean less material output and less consumption since any consumption will be derived directly from extraction from the environment, but this is likely to be compensated for in terms of other important things which we can value and cherish.



There are other issues also, like involving the local communities in preparation of the EIAs and also in the decision-making process. However, the impact of the current model of growth and development is so overwhelming that it needs thinking on a much more fundamental level. We, as a society, need to step back and think about what we want our world to be like. For example, do we want our rivers to flow? Today, the way water and energy plans are being made and rolled out, they require every river to be dammed and / or diverted, not just at one point, but at many



many points. If current plans – for water and electricity generation – go on as planned, it is likely that there will be no free flowing river left in the country soon.

We need to think about whether this is what we want for our future. We will need to extend, or rather build, this vision of the future to include water, and energy and minerals, and rivers and forests and hills among many other things. This larger vision we collectively have for our environment –and that includes the human communities in it – will determine how we view growth. I would argue –for a vision in which we are much kinder to our environment. Being kinder to environment may mean less material output and less consumption since any consumption will be derived directly from extraction from the environment, but this is likely to be compensated for in terms of other important things which we can value and cherish.

Indeed, any vision is about values. Values not only mean a code of ethics, but what we collectively find important, what is worth more to us than something else. In articulating a new vision, we are essentially articulating a different set of values, and reshaping

the notions of growth and development in alignment with these values.

A number of people's movements across the country challenging large projects show what elements of such a vision could be. In all these cases, while the struggles, just like the Narmada struggle, are rooted in survival for the communities, they also advance some critical values. Indeed, survival often includes the preservation of these values- not just economic or material survival.

In Kerala, the people of the Chalakudyputha have been opposing the construction of the 163 MW Athirapally dam. One of the reasons for opposing the dam is that it will destroy the stunningly beautiful Athirapally water fall.

In Arunachal, the Idu Mishmi people of the Dibang valley are fiercely battling the 3000 MW Dibang hydropower project. One of the reasons is that the flowing Dibang is the core of their identity. The fight of the Dongaria Kondh against global giant Vedanta to protect the Niyamgiri mountain in Odisha is well known. The tribals assert that the mountain is sacred for them. On one side is bauxite worth millions of dollars. On the other side is the Niyamraja whose value is beyond price.

The Dongaria Kondh tribes have a vision of the world. In that vision, the rightful place for bauxite is in the ground, inside the hill. The untouched Niyamgiri has the pride of place.

These and many other movements, campaigns, thinkers, communities are putting forward threads that can be woven into a tapestry of a different vision of environment and development. In this vision, there is likely to be less coal, less aluminum, less steel and may be less electricity. But there are likely to be more forests, more flowing rivers and more unscathed hills. Not just this, but by its very definition this vision values more equity, more justice and a decent living for everyone.

Is such a vision possible? I believe the answer is a “yes”. There are hundreds of people who are working on developing some elements of such a vision, of making it into a reality. My own work is currently centered on this. A part of Girish’s wide range of work in his last days related to this. Indeed, his last article, published just 2 days before his untimely demise, talked about “a multi dimensional solution” to India’s energy crisis that would have a three-pronged strategy to “replace, improve, and reduce”. Undoubtedly, a lot more work is needed, but there is enough evidence to see that such a vision – where development and growth is participatory, has more equitable sharing of benefits and costs, and is in harmony with the environment – is possible, and is also urgently required.

The creation and practise of such a vision is what I mean by Rethinking Growth, Rethinking Development.



**Shripad
Dharmadhikary
– B.Tech ME, C85**

Shripad Dharmadhikary (B.Tech. 1985, Mechanical Engineering) is an activist academic whose work is rooted in the area of environment and development, seen in a framework of justice, equity and sustainability. From 1988 to 2001, he was a full time activist with the Narmada Bachao Andolan (NBA) . He has been associated with the World Commission on Dams (WCD) since its inception in Gland, Switzerland, and later as a member of the WCD Forum. After 2001, Shripad set up the Manthan Adhyayan Kendra, a policy studies centre engaged in researching, monitoring and analysing water and energy issues. He has also been working part time with Prayas Energy Group, Pune since 2011. Shripad is on the Steering Committee of the Forum for Policy Dialogue on Water Conflicts in India. He was a member (in 2011) of Government of India’s Planning Commission’s two Working Groups for 12th Plan on Urban and Industrial Water Supply, and on Model Bill for State Water Regulatory System. He writes regularly on the issues of water, energy and development. He can be reached at shripad@iitbombay.org

An Environmentalist among Historians

Ramachandra Guha is perhaps one of India's most prolific as well as popular social historians. He is equally well respected among scholars and academicians but comfortably steps across into the field of journalism, biography anthropology and cricket history.

An author of a host of books, a regular contributor to a host of journals, columnist for newspapers and magazines, he is a man who needs no introduction. He might have moved on to more political subjects recently but his body of work in the field of environmental history and environmentalism remains seminal. If you have not done so already, check out his study of the Chipko Movement in "The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya", with Madhav Gadgil "This Fissured Land: An Ecological History of India" as well as "Ecology and Equity" and "Environmentalism: A global history". More recently, "How Much Should a Person Consume?: Thinking Through the Environment" forces the urban consumerist Indian to rethink many established trends. His most recent book is "Patriots and Partisans (Penguin/Allen Lane).

A winner of numerous awards and accolades and a teacher at universities in far corners of the globe, his most recent appointment was as the Philippe Roman Chair of International Affairs and History at the London School of

Economics. Fundabees have an editorial policy not to accept any article previously printed elsewhere. But for the specific relevance to the theme and the unique honour of carrying something from him we decided to relax this rules for once. The article reproduced here was originally published in the Hindustan Times, 24th July 2012 and has been reprinted with the permission of the author.

Fundabees

The Indian Road To Sustainability

Ramachandra Guha

In June 1992, Manmohan Singh, then finance minister in the Government of India, delivered the Foundation Day Address of the Society for Promotion of Wastelands Development (SPWD). He spoke on the topic 'Environment and the New Economic Policies'. In his talk, Singh urged "objective standards industry-wise for safeguarding the environment, asking industry to certify compliance with these standards, institution of an effective system of verification and industry audit and heavy penalties for non-compliance with approved environmental standards and norms".

Back in 1992, Singh expressed the hope that the new economic policies, by ending bureaucratic regulation of economic activities, would "set free a substantial amount of scarce administrative resources which can then be deployed in nation-building activities like rural development, education, health and environmental protection". The finance minister ended his lecture by saying that, "I for one am convinced that the new economic policies introduced since July 1991 will provide a powerful stimulus to an accelerated drive both for poverty reduction and the protection of our environment."

There is a vigorous debate on the impact of economic liberalisation on poverty reduction. I am not qualified to intervene in this debate, but as a long-time student of environmental



issues, I can confidently state that in this latter respect Singh's hope has been falsified. The past two decades have seen a systematic assault on our lands, forests, rivers, and atmosphere, whereby new industries, mines, and townships have been granted clearances without any thought for our long-term future as a country and a civilisation.

In the 1980s — the decade before Singh addressed the SPWD — the environmental movement had forced the government to introduce a series of important ameliorative measures. Pressures from popular agitations such as the Chipko Andolan had made the nation's forest policies more sensitive to local communities and to ecological diversity. A movement led by a professor-priest in Banaras had committed the government to a Ganga Action Plan, which aimed to clean the polluted holy river as a prelude to the restoration of other rivers and water-bodies.



Ecology really is just kicking the can down the road

The scientific and social critiques of large hydel projects had compelled a closer look at decentralised and non-destructive alternatives for water conservation and irrigation.

When speaking of environmental issues, it is important to recognise that in a densely populated country like India, these have both an ecological as well as human dimension. Programmes to clear-cut natural forests and replace them with exotic species deplete the soil even as they deprive peasants of access to fuel, fodder and artisanal raw material. Mining projects, if not properly regulated or carried out with state-of-the-art technologies, ravage hillsides and pollute rivers used by villagers downstream. In this sense, in India, environmental protection or conservation is not a luxury — as it might be in rich, under-populated countries — but the very basis of human (and national) survival.

This was the key insight of the Indian environmental movement of the 1970s and 1980s, which informed both scien-

tific research as well as public policy. After economic liberalisation, however, environmental safeguards have been systematically dismantled. The ministry of environment and forests has cleared destructive projects with abandon. Penalties on errant industries are virtually never enforced. Although by law every new project has to have an Environmental Impact Assessment (EIA), these, as the then environment minister Jairam Ramesh candidly admitted in March 2011, are a

In India, environmental protection or conservation is not a luxury — as it might be in rich, under-populated countries — but the very basis of human (and national) survival.



“bit of a joke”, since “under the system we have today, the person who is putting up the project prepares the report”.

As a consequence, the natural environment has steadily deteriorated over the past 20 years. Levels of air pollution in our cities have increased. More rivers are dead or dying owing to the influx of untreated waste. Our forests remain under threat. The chemical contamination of the soil continues unabated.

This undermining of India’s natural life-support systems is ignored, indeed at times encouraged, by state and central governments of all ideologies and parties. Consider the official hostility to the comprehensive, fact-filled and carefully written report on the Western Ghats prepared by a team of experts led by the world-famous ecologist Madhav Gadgil. The Ghats are a natural treasure more precious even than the Himalaya. Their forests, waters, and soils nourish the livelihoods of several hundred million Indians. The Gadgil report urges a judicious balance

of development and conservation, whereby local communities as well as scientific experts are consulted on mining, tourism, and energy generation projects. The report is in the spirit of the democracy and social equality professed by the Constitution. However, its recommendations do not sit easily with those who would auction our natural resources to the highest bidder or the bidder with the most helpful political connections. Chief ministers of states have condemned the

Singh's prediction of 1992 — that the environmental situation would improve after liberalisation — has unfortunately not come to pass. Natural systems have continued to decline, while social conflicts have increased.



report without reading it. The Union minister of the environment has refused to meet the distinguished authors of a report her own ministry commissioned. Meanwhile, Gadgil and his equally esteemed colleague, MS Swaminathan, have been dropped from the National Advisory Council. This has further impoverished that body, since Professors Gadgil and Swaminathan are not 'jhola-walas' but top-class scientists, advocating policies based not on ideology but on logical reasoning and empirical evidence. Singh's prediction of 1992 — that the environmental situation would improve after liberalisation — has unfortunately not come to pass. Natural systems have continued to decline, while social conflicts have increased, as developers unchecked by the State or the law aggressively displace local farmers, herders, and fisherfolk. Let me end with a prediction of my own. If the Gadgil report is junked,

the Western Ghats will, in the years to come, witness its own Singurs, Nandigrams, Niyamgiris, and Dantewadas.

Image courtesy <http://mwifc.org>.

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Ramachandra
Guha

Climate Change Needs an Elephant Whisperer

Raghu Murtugudde

Climate change is now obvious from accurate and precise measurements of greenhouse gases like carbon dioxide and the increase in the global mean temperatures. The high correlation between the two can be put in the context of longer-term climate variability of Earth to raise all kinds of doubts about causal links. Yes, climate always changes and has changed throughout the history of our planet starting at its inception about 4.6 bya. But the physics of the system is well understood and we know that the increase in greenhouse gases traps more of the outgoing longwave radiation and warms the planet. This increase in greenhouse gases and the consequent warming has been the most rapid in at least the last 20 million years. The carbon dioxide levels are increasing at about 3% per year now and the concentration in the atmosphere is near 395 parts per million by volume compared to the 280 ppm at the start of the Industrial revolution. The warming rate is about 0.13° C per decade in the last 50 years, which is twice the rate of warming for the past century. Both the increases in greenhouse gases and global warming are accelerating.

The perfect blanket we inherited keeps us from getting hot as hell like on Venus or freezing to death like on Mars - the Goldilock syndrome was solved for us by a unique set of circumstances that likely made life itself possible on Earth; like the gravitational trapping of the moon to stabilise Earth's obliq-

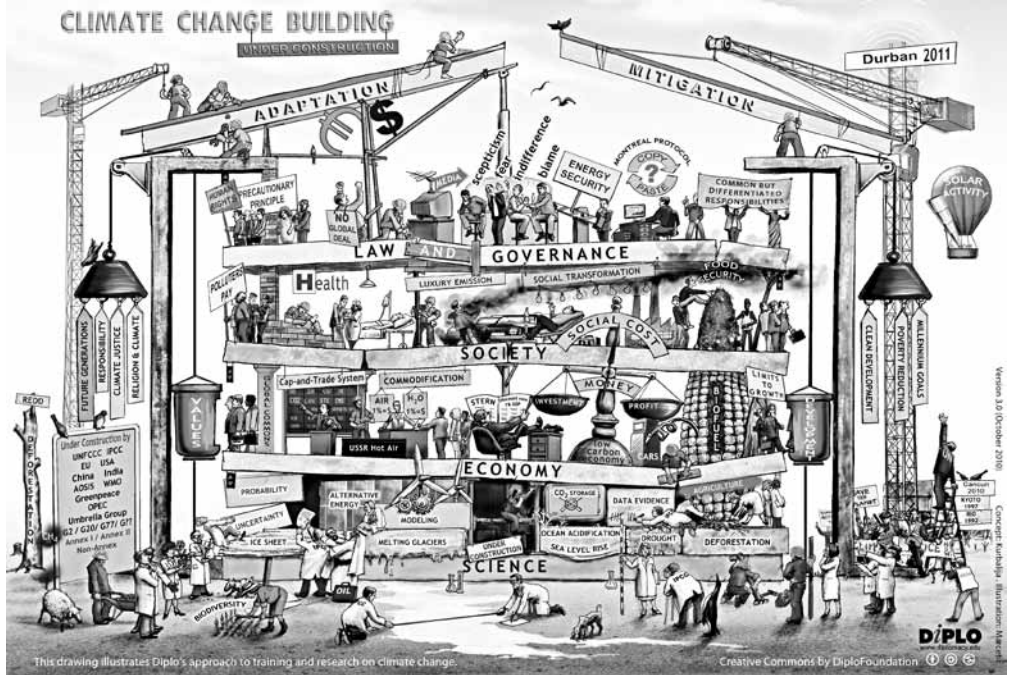
All global warming is local and unlike the ozone hole problem, where all life on Earth stands to lose, global warming will create winners and losers.



uity to 22.5 to 24.5 degrees varying slowly at a 41,000 year cycle and keeping the seasonal changes relatively mild and preventing the climate from varying at a rapid rate.

The multiplicity of evidences for the impact of human activities on the functioning of our planet provides additional scientific foundation for the causal links - increasing humidity, warmer and more acidic ocean, warmer atmosphere and land, melting of ice and glaciers, delayed arrival of winter and early arrival of spring, rising sea levels, and of course the crazy weather and the rapid loss of biodiversity in many places. All global warming is local and unlike the ozone hole problem, where all life on Earth stands to lose, global warming will create winners and losers. This, combined with the natural tendency of the human mind to heavily discount the future and taking the wait-and-see attitude when the risk is not obvious or imminent, has led to the current glacial pace of climate negotiations.

Jonathan Haidt, a social psychologist



proposed the concept of the human mind being split - a rational rider that is thoughtful, logical, and systematic but can rationalise forever and never make a decision, vs. an emotional elephant that is slow to get motivated and hard to steer but once the path is clear, makes a decision and moves steadfastly to achieve the goal.

Survey after survey indicate that the rider has in fact seen clear evidence of climate change but is simply spinning his wheels and rationalising about whether anything needs to be done right away. The climate community and the environmental movement have taken charge of trying to save the planet but have convinced themselves that the planet will be saved simply by throwing up images of melting ice and polar bears and issuing increasingly alarming messages about the dangers of climate change. The success of this approach has been extremely limited in terms of engaging the human mind to act, other than the small changes by a minority, since even the most conscientious human mind is subject to the one-action bias.

Buying a hybrid car or switching to CFL bulbs or a vegetarian diet is often employed

Image Courtesy <http://translate-climate.wikispaces.com>
 to feel good about having done one's part for saving the planet. I would argue that all our energies now need to be focused on motivating the rider to act in a comprehensive way to change our lifestyle by providing solutions for everything from how to minimise energy use from the time we turn on the lights in the morning to saving water as we brush our teeth before bedtime. The fundamental behavioral change required is so monumental that a serious set of indicators and incentives are needed that will, throughout the day, show us how much of the planet's resources we are consuming - from electricity to gasoline to food to water. This should not simply be a case of putting up signs that warn us at every step and every minute that the World is coming to an end since that will surely lead to a sense of hopelessness and the response may well be to assume that there is nothing anybody can do to save the planet from ourselves. The message should in fact intelligently mix positive messages of the incredible and bountiful future we will all share if we are mindful of our consumption.

The human being is the most cooperative species on this planet and has repeatedly

With our ability to dominate the planet like no other species can, it may be more important for us to understand whether we have it in us to save us from ourselves. That would mean reaching the emotional elephant in the most cooperative species of all.



shown the ability to share intelligence for accomplishing infinite combinations of non-zero exchanges and to avoid the tragedy of the commons with consensual norms and punishments. The human mind is also unique in internalising the norms and making it a preference - like stopping at the red light in the middle of the night even when nobody is watching and obeying the rule of reciprocity by repaying favors received and punishing the free-riders who do not follow social norms. Surely, we can appeal to such an exalted mind that also possesses intrinsic values that make it care about friends, family, and the environment, to save the very planet we live on! We must find a way to whisper to the elephant about climate change to get it going in the right direction as it is very well capable of, once the path is clear.

How did we come to be the most cooperative species on the planet and may be in the universe? The Big History view of historian David Christian provides a nice long-term perspective. Time and space both came to be with the Big Bang about 13.7 bya and lighter elements like hydrogen, helium, and lithium filled the universe in the first half a billion year. Earlier stars and galaxies were born and they died to produce heavier elements - especially those necessary for life as we know it, i.e., carbon, oxygen, nitrogen, phosphorus,

and sulfur. The four fundamental forces - strong and weak nuclear forces, gravity, and electromagnetism rule the universe with the help of the law of gravity and the second law of thermodynamics.

Exactly how life came to be and what the earliest form of life was or where it was conceived remain as mysterious as what existed before the Big Bang. That does leave room for a Creator and as Stephen Hawking joked, if you ask what the Creator was doing before the Big Bang, St. Augustine could say he was busy preparing hell for people who ask such questions. Schrodinger wondered what life was and, as a physicist, his quest was to see if the laws that govern the rest of the universe have any role within life itself. He did note that life can locally create order out of disorder and appear to violate the second law of thermodynamics which demands that disorder increase forever. He was also quick to point out that life does increase disorder globally. He motivated Watson and Crick to seek structures that define life leading to their discovery of the DNA.

The Urey-Miller experiment showed that throwing together a mixture of inorganic matter together in a flask with no free oxygen and bombarding it with simulated lightning led to the production of the basic building blocks of life a la the primordial soup, viz., amino acids and sugar molecules. The Cech-Altman experiment led to the discovery that the RNA could cleave and splice itself together and act as if it can be both the 'chicken' and the 'egg' and also allow the replication to include errors leading to mutation and new forms of life. Knowing that the RNA provides the enzymes to translate the instructions from the DNA to manufacture proteins, it has been argued that the RNA probably preceded the DNA. Chemical compounds like cyanide that make up the

nucleobases or the building blocks of the RNA and DNA would have been abundant on early Earth being bombarded by the debris of the solar system under construction. As David Christian points out, life is made up of chemical reactions which are ruled by the electromagnetic force that is much weaker than gravity and hence life is small compared to the stellar objects formed under the gravitational pull on the galactic dust. Leaving aside the fact that we cannot really agree upon a universal definition of life and hence we cannot know for now how and where life came to be, we can resort to Darwin's theory of evolution to explain the history of life once life did originate.

Geological evidence indicates that biotic activities must have started within a billion years of the origin of Earth, probably in the ocean, as archeobacteria - cells with no nuclei called prokaryotes, when the atmosphere had almost no free oxygen. As noted by Lynn Margulis, mitochondria and plastids have their own DNA in cells and thus an endosymbiosis of these independent cells by some other cells led to photosynthesis and the increase of free oxygen in the ocean and the atmosphere. Rising oxygen levels would have made larger and larger life forms possible. As more complex life forms evolved, Darwin's theory of evolution was in full force leading up to mammals and primates, and our ancestors.

Several accidents occurred along the way like the loss of control genes that made men the only primates with a spineless penis, but more importantly, one such loss also likely led to the expansion of the cranium. Invention of fire and consumption of meat and a concentrated protein diet would have led to the shortening of intestines and release of some of the metabolic energy for the brain to grow to fill up the cranium. In modern humans, 60% of the energy is required for

brain activities during infancy! Use of the brain to build more precise tools also assisted the brain to become sharper via the Baldwinian evolution.

Does the largest of brains by body mass also make us the most intelligent of all species? The definition of intelligence is hardly unique but intelligence abounds in nature with the bumblebees solving the so-called travelling salesman problem to visit each flower only once and the dolphins learning to walk on water just for fun and teaching each other how to do it!

Current understanding is not sufficient to fully explain why humans evolved to master symbolic language and if there is a relation between the large brain and our ability to communicate and cooperate. Cooperation itself likely evolved to avoid visual theft and as a means of hunting big game and sharing it. Paleontologist and a Jesuit priest, Pierre Tielhard de Chardin argues that matter simply tends to complexify and the evolution of consciousness is a natural outcome of complexification of matter.

There are apparent linkages between changes in our diet, dopamine levels, and reward seeking behaviour. The combination of seeking rewards and the ability to communicate must be associated with the increasing need to cooperate and share intelligence since there are rewards associated with sharing intelligence and inventions. For example, capitalism thrives on the idea that market forces drive inventions and intelligence sharing for profit.

With our ability to dominate the planet like no other species can, it may be more important for us to understand whether we have it in us to save us from ourselves. That would mean reaching the emotional elephant in the most cooperative species of all.

Robert Wright points out the inexorable march of humanity towards ever increasing cooperation via non-zero interactions among individuals, groups, and nations. Even though the climate negotiations appear to be stuck or faltering, the very fact that the entire globe is at the table indicates, yet again, that the global human is seriously at work to face this daunting challenge in a cooperative way.

Climate scientists will do well by focusing on specific and usable solutions instead of being too busy talking about climate change to do anything about it. The rider has seen the enemy and realises that it is us. The elephant is not sure what to do because no clear way forward is being offered by the climate scientists. Considering the fundamental change needed in the way we consume natural resources to irreversibly convert them into junk like plastic and smartphones, a game-changer is required to wean ourselves off the carbon-based economies and to capture and sequester the carbon we have been throwing up and will continue to do so for the foreseeable future. This is well within our ability as has been seen over and over again in human history with things like the telegraph eventually leading to the internet and the smartphone and space travel.

A vision for the future of our planet is sorely needed to motivate the elephant and an elephant whisperer with a depth of conviction of people like Mahatma Gandhi or Martin Luther King should emerge for dealing with climate change in a non-violent and equitable way. The children of today and tomorrow should grow up dreaming about building rockets to explore the universe and not live in fear of a planet coming to an end due to our own actions. This is well within our reach once we realise that climate change will not be solved simply by portraying scarier and scarier images of the devastation underway but seriously focusing on clear-

ing the path to a safe and secure future and finding ways to whisper to the elephant to take this path. Richard Dawkins posited that a species has come of age when it has understood the purpose for its being. Saving the planet from ourselves would bring us a step closer to understanding the purpose for our being. It certainly cannot be to make the planet a living hell for ourselves and for so many other species. The elephant needs to get moving post-haste.



**Raghu
Murtugudde**
– B.Tech AE, C83

Raghu Murtugudde is an '83 Aero alum following which he continued to sell firewood with his father in Dharwad for 6 months and returned to Aero as a project scientist. He went to the US for an MS in Aero from UT-Arlington, and a Ph.D. In ME at Columbia Univ. During his stint at NASA and as a faculty at UMD he took his CFD expertise to climate modeling including climate impacts. He has been engaged with NGOs on sustainable agriculture methods and research on human mind and its limitations in accepting risks that are not obvious and imminent like climate change.

Balancing the wild

I love not man the less, but Nature more...

Fundabees

'I believe in simple living and no thinking', says the man who has dedicated his life and work to being the crusader of all environments, ecosystems, and all things living - large or small - on or under earth; under deep waters or on tall mountains. He finds grace in the ugly and is an ardent observer of all organisms growing, flourishing, yielding fruits, and then withering and dying in their natural habitat or not. At BBC's recently held 100 years of Wildlife Films, his work was honoured and hailed by none other than Sir David Attenborough as a 'film maker whose films will actually save the species from extinction'.

He dresses his part and when the Fundamentals Beehive edit team met him at the 43rd International Film Festival of India at Goa, he looked quite ready for the high street of any of the world's densest jungles. Mike Pandey, the Indian film maker and conservationist, is the winner of several Green Oscars and over 300 other prestigious awards. Born in East Africa, lived in England, and studied and trained in the UK and US, Mike even went to Hollywood to study serious cinema. His return to India can easily be termed as more dramatic than a Bollywood alpha male hero's entry in the cinema of the late eighties. He drove down from England to India, alone, crossing continents in his Ford Zapper. He clocked in 8760 kms and it took him 10.5 days. In a freewheeling chat, he was

not only thorough with the subject but also thoroughly provocative. His 'simple living no thinking' mantra exudes passion that can be infectious. Read on...

Beehive: You were born in East Africa with the Nairobi National Park as your backyard. You could not have escaped love for the wild too easily.

MP: Yes, my fascination with the wild did start quite early and quite effortlessly. I believe there is a super-consciousness that decides where you will go. Some call it destiny, I call it the wind. It takes you where you have to go. Once, my brother and I, as young kids of 9 or 10, were returning home in East Africa, and suddenly in front of us was this unforgettable scene of a dying big fish in the sea. The big fish was the whale shark and that vision must have stayed in a safety-vault-like corner of my young mind.

After returning to India, I joined the film industry and worked as a Director of special effects. I specialised in war scenes for films like Razia Sultan, Betaab, Gazab etc., but soon moved away because I didn't find any meaning in what I was doing. It was around that time that the call of the wild returned. It was strong and I was desperate to do something that had a purpose. I wanted to make a difference, build capacities, empower and inform people of my country.

The first thing that came back to my mind then, was the vision of the dying whale shark that I had seen decades ago. I was driven with the idea of making a film on whale sharks in India. It was unheard of and many discouragingly said that India had no history of whales so it was pointless. It took me 2.5 years to find the whales along the west coast and I made the film 'Shores of Silence - Whale Sharks in India'. The film depicts the needless killing and harvesting of whale sharks by poor Indian communities. So I owe

a lot to that vision in my home in East Africa that determined my path.

Beehive: It couldn't have been easy to make such a film when there was so much ignorance and opposition. Were you able to find any sponsorship? Take us through the making of the film.

MP: I didn't get any money for this from anywhere. The fact that whale sharks were discovered migrating down the west coast

A bee visits over 100,000 blossoms in a day, travels up to 80 kms in a day, pollinates, and produces 1 tea spoon of honey in a lifetime before it dies. It's a service to all the species on the planet.



of India was actually denied by the Indian government, so I could not have expected any support or sponsorship from them in anyway. I worked for a few months in Europe and raised enough money to make the film independently. The film tells us how poor, local fishermen were risking their lives to kill and skin over 1200 sharks in less than 6 weeks, just for its liver meat that was being sold for Re 1 a kilo! I shot it under extreme conditions with constant death threats from the local mafia.

This film moved the government of India into bringing in legislation and banning the killing of the Whale Sharks on Indian shores. The Whale Shark was declared protected under the Indian Wildlife Act- 1972, bringing it on par with the Tiger and the Rhino.

It was the first marine species to be protected under Indian law. In November 2002, at the international CITES meet in Santiago, Chile,

a negative voting changed into an overwhelming positive after this film was shown to the delegates - bringing global protection of the Whale Shark and giving the largest fish in the world a new lease of life.

But for me, my biggest reward came from the fishermen who didn't even know what they were killing. When I was making it, they would laugh at me and wonder why there was so much brouhaha over a garbage fish that was only good for its liver meat. The film was made in an effort to create awareness and gather support to protect and conserve this species. The aim was to eventually help create policies to ban the whale shark trade in India and find sustainable alternatives for the local fishing community. I'm elated in bringing about a change in the attitude of those fisher folk who have now become their guardians.

Beehive: What a tremendous feat and what a story! I have goosebumps just hearing it. That must have been something.

MP: Oh yes it was. But let's not forget that it all happened simply because I was at the right place at the right time.

Beehive: You've mentioned about lack of information, knowledge and awareness. How big a problem is that?

MP: The earth today is in serious crises. If this earth, that sustains millions of life-forms, was facing just one or a few simple challenges, it could handle it, but the magnitude of its challenges is staggering. It's facing multiple and multi-layered challenges today. Apart from visible challenges of degradation and climate change, the most dangerous of them all is the disappearance of our chief pollinators – the bees and butterflies. And all these problems and more are happening because of ignorance.

The bees and butterflies, unknown to a lot of

people, not only bring our food and fruits to the table, they also produce over 14 trillion dollar worth products every year! Globally today, crop production has fallen by 3 per cent. In such a scenario, what do we do? We divert 25 per cent of corn produced towards making ethanol for cars. The question is do we need food to survive or do we need cars?

In the Sichuan district of China there are no bees. The pear trees which used to give 2,500 kgs of pears now produce only 200-250 kgs and that too is produced because all the farmers, their wives and children, climb up the pear trees with feathers in their hands to tickle the blossoms for pollination. In our own country we are importing bees from Italy for pollinating apple crops in Himachal Pradesh and Uttarakhand. A bee visits over 100,000 blossoms in a day, travels up to 80 kms in a day, pollinates, and produces 1 tea spoon of honey in a lifetime before it dies. It's a service to all the species on the planet. Even a tiger that eats the deer needs the bee to pollinate and produce the grass that the deer eats. So everything in life is interconnected and interdependent. Without the bee, life on earth will cease to exist within 5 years. Earth will turn into a desert and that is scary!

I'll give you another example, that of the Horseshoe crab. It's the oldest creature on the planet – 552 million years old. Found only on the Eastern coast of Orissa, particularly in Balasore and Shantipur area. It is apparently a boon to humankind, an elixir yet to be fully discovered by us, particularly by the medical scientists. For all these million years that it has lived on earth, no sign of evolution has come to show on the horseshoe crab. Connected with the Horseshoe crab, there are 9 patents applications, of which 3 have been passed. There is enough research to show that it can reverse osteoporosis, diabetes, and cancerous cell growth and can heal a damaged heart. A lot of homeopathic

medicines are also made from it.

The Orissa cyclone washed away its habitat. Also, because it has no meat, people don't take too much interest in it. They are sold for as low as 25 paise, sometimes a rupee. The Chinese Horseshoe crab is more or less extinct and the Japanese ones have just a few hundreds left. We have not made any attempt to even count them.

We haven't discovered even 2 percent of the ocean and yet we are destroying it. We haven't even discovered all the species of our forest and yet we are destroying it.

Beehive: Tell us more about this web of interconnectivity.

MP: We need to understand that we human beings are a very small strand of this complex and intricate web of life. Each strand of the web depends on the other strand for survival. If we take one species out, it impacts the whole web and weakens it. So learning to live in harmony is crucial and therefore it is important to understand that we need to re-invent and change the way we live if we want a future, otherwise we're going to be in serious trouble.

In eastern UP, in a place called Dohri Ghat, Dolphins have turned blind and sensitive and are living in murky waters. Dolphins and turtles are scavengers of the rivers – they keep the river ecosystem clean. Here in Goa, we're using the sea as a dumping ground with all the garbage being thrown in to it. Millions of litres of effluents containing detergents and industrial wastes are going into it. The oceans are the womb of the earth. That's where life came from. If we poison it, turn it acidic, all life will die. Directly or indirectly, livelihoods of nearly 3 billion people on this planet, who depend on fisheries, will be affected. Reverence and respect for every life form on this planet needs to be cultivated as each one has

a crucial role to play.

Even the cockroach. Many people say the cockroach is dirty, what good is it? The Cockroach makes itself useful by being part of a medicine called blatta orientalis and if someone with severe asthma falls gasping for life on the floor, just 2 drops of blatta orientalis in the throat will revive the person in nanoseconds. A rat must eat and rest in a burrow. When it goes in a burrow, it aerates the land. Earth needs air too. Ants also do

We haven't discovered even 2 percent of the ocean and yet we are destroying it. We haven't even discovered all the species of our forest and yet we are destroying it.



the same thing. And to ensure the population of rats doesn't go high, cats and snakes go and invade the nests. So if you don't kill the snakes, the population of rats will never go up. Rats only proliferate where there is no predator. Mosquitoes too provide the frogs with their larvae. Frogs keep the rivers and wells clean. So it's all interdependent.

The vultures along with the houseflies and bacteria are the most crucial decomposers of the planet. If there were no bacteria, there would be a 150 km thick layer surrounding the earth. The Vulture, primarily a slow breeding and long living bird, plays a significant role in the balancing and harmony of nature. An absence of Vultures will lead to lakhs of decaying and putrefying carcasses which will litter our surroundings, creating a breeding ground for thousands of unknown strains of viruses and diseases and lethal bacteria.

Beehive: What are your views on the Indian

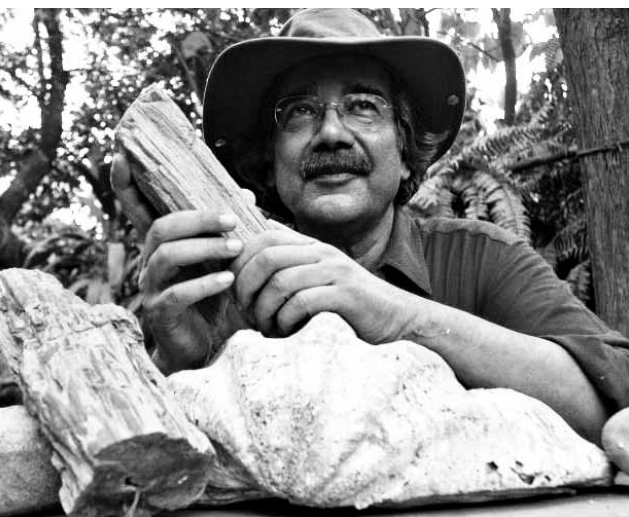
perspective? How important should wildlife be in the list of priorities, especially when we are still grappling with so many social, political, and infrastructural issues?

MP: India needs the tiger because the tiger protects its jungles and it is the jungles that give us water. We need equilibrium in the jungles. If the jungle equilibrium is gone, the monkeys and wild boars proliferate, and its balance will be lost. Over 360 rivers – small and large – flow out of the Western Ghats and keeps southern India and people up to Mumbai alive. You take away the Western Ghats and replace them with open cast mines, you will be wiping out the most vital element on the planet and this area will turn into a desert in no time. So, it is very important for policy makers to understand that they cannot eat iron and diamonds and gold nuggets alone. You need 250 gms of carbon to survive, which means energy, which means food, and you need air and water and that comes from forest alone. No factory, no machine on earth can provide that.

Wildlife is going through a very critical phase. One of the concerns is the myopic view of the babus who occupy seats of power, who don't visit jungles but are interested in scribbling laws and adding red tape. There is an increasing trend in the cities (which is not India for me) where, unfortunately, power and money by the age of 45 is the goal. It's like being a blinkered horse running for the winning post. Totally oblivious of the fact that there is a river that is drying up and by the time you reach your goal, the water would've dried up.

Beehive: Is there hope? What can be done?

MP: There was a cover story done by Times magazine in 2009 in which it said that 67 per cent of the population after 65 years of independence is still without information and is illiterate.



None of this will change till we know and learn and make others know and learn. I chair an NGO called Earth Matters Foundation that is working towards conservation of natural resources, environment and wildlife, education and awareness generation. Earth Matters is trying to bring citizen science – which explains to people the link between our lives and nature minus the jargon. Good information is garbage if it doesn't reach people and having reached, doesn't sink in. For that to happen, one really needs to take the jargon away and I strongly believe that it's only when you understand that you begin to respect. And what you respect, you protect and you love. So the next time you look at the honey bee, you should be filled with reverence for bringing food to your table. The survey that Times magazine did found that this simple program that I make called Earth Matters reaches the interiors and the people who work at the grass-roots level. Films that we make need to be seen not just by festival goers but also by people who are affected and can be changed.

The film I'm now working on is called the 'Return of the Tiger'. I've got John Abraham and Amitabh Bachchan supporting me. This

is essential because I'm hoping for a larger theatrical release, so it becomes accessible to all, increase outreach, and get newer audiences.

Conclusion: I came to know of Dr. James E. Lovelock only recently, but even if I would have known him earlier, I would have been in agreement with what he has proposed now. Lovelock, as some of you may know, is an independent scientist and environmentalist. He proposed the Gaia hypothesis (named after Greek supreme goddess of Earth). Lovelock broke from conventional science, having become convinced that the earth is a living organism. According to the hypothesis, "When the activity of an organism favours the environment as well as the organism itself, then its spread will be assisted; eventually the organism and the environmental change associated with it will become global in extent. The reverse is also true, and any species that adversely affects the environment is doomed; but life goes on."

According to my hypothesis - the good and bad on the planet are balancing each other out – so there is nothing to get so alarmed about and life will go on. It is clearly a rather cynical and convenient view as long as I did not have to do any work and somebody else was doing it. That's not all, I'm also ashamed to have been silent while a few hundreds of honeybees were being burnt away to get rid of the hive on my home balcony. I don't know if I will ever be able to forgive myself for it or seek forgiveness from the entire honeybee community, but I'm glad there are forces like Mike Pandey who are not giving up on people like me so easily. ●

From the Big Apple

It is always a tough job to introduce a professional essayist and speechwriter but I am glad this is before the sheer intensity that is to follow! Joan Chevalier is a New York city based essayist and speechwriter. She writes speeches for top executives, primarily in the financial service industry, and currently serves as the chief of staff for Mr. Theodore Roosevelt IV. Her opinion pieces have appeared in most major U.S. publications; those in her own name appear in the Washington Times, Boston Globe, and Wall Street Journal Political Diary as "Quotes of the Day". She is published in a number of other venues, but claims that she "spares the world by stopping at poetry and song." She also owns her own consulting business, Chevalier Communications, and is a graduate of Sarah Lawrence College.

Joan has been actively engaged with the IIT community in general and IIT Bombay in particular over the past two years. She was instrumental in making Mr. Roosevelt's participation possible in the opening panel

discussion on Clean Energy at PanIIT Conference in 2011 at New York. Joan also participated in a panel discussion on "Following Your Passion" in 2012 which was well received by our IIT junta. She has written in the past for our sister publication in New York, gnY-Point. By her own admission, she can't refuse a request coming from us! In person, Joan's candor, witticism and charm is bound to bowl one over.

Applebee



Cattle Ranching, Roosevelts, and Climate Change

The Divide between Rural People and Environmentalists in the United States (A partial answer to why the U.S doesn't act on climate)

Joan Chevalier

I could hear the urgency in her low voice, even if I didn't understand it. "Joan, back your horse away from those bulls." A green-horn and a nitwit, I imagined that I needed to keep two sparring bulls from fighting. So, toward the charging bellowing animals, I blithely trotted my confused horse. All the while, I tut tutted "bad bulls, behave yourselves." Even the horse knew this was a very stupid idea. He started to move at a standing trot -- that would be straight up and down, but not forward. He was plotting to launch the idiot off his back and move sensibly away from the bulls on his own.

Carol repeated, "Back away." The hard emphasis at the end of the sentence made it clear to me there was an unspoken "damn it" tucked away in that period. Carol did not relish the thought of airlifting a New York City environmentalist (of all things) to a distant hospital. And it looked like either the horse or the bulls were about to do me some damage. I was in a spot where I routinely find myself . . . between a rock and a hard place.

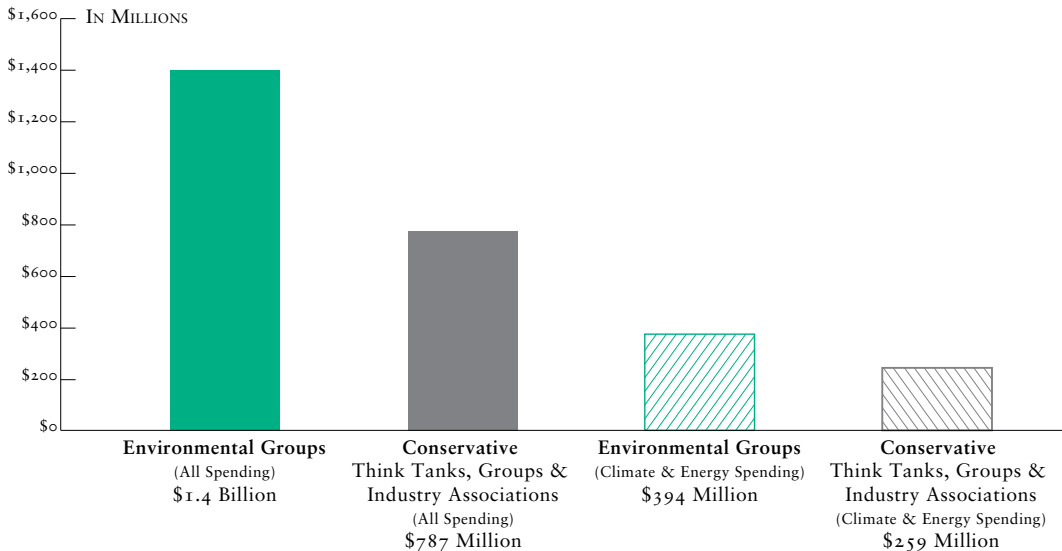
In fact, I was there, in a wilderness section of Wyoming rangeland, because of other voices in my life -- the environmental left, Europeans and Americans, all frustrated by international climate change negotiations and the lack of leadership coming from the United States.



"What's wrong with the U.S? How is it that they don't understand this issue?" They are the uncomprehending Republicans, who primarily represent rural and exurban regions of my country; Democrats win in states with large urban populations. What I didn't understand was why rural people were at such odds with environmentalists. It seemed to me that they should be natural allies. At least, that's what I thought looking at the situation from the altitude of a New York City skyscraper. I went West to find answers.

You hear many conspiracy theories from the left with regard to climate change opponents -- it is the evil geniuses at oil companies, all commandeered by the monied power of one set of billionaires. Of course, environ-

SPENDING BY CLIMATE ACTION ADVOCATES AND OPPONENTS



mentalists don't discuss their own coterie of billionaires funding public relations firms and consultants. In fact, according to Michael Nesbit, who wrote a controversial paper about environmental funding, "Climate Shift", environmental organizations far outspent conservatives in the last battle for a climate bill. Now, there are many ways to add up that money, but bottom line: US environmental organizations spent a lot of it and still came up empty. None of the largest environmental groups in my country will take ownership for their detrimental role in this battle; they will not own their colonial attitude toward rural Americans, focused for much of the last two decades on those who live in our public lands states. There are twelve "public lands" states in the west; this means that the federal government controls as much as 80 percent of the land in these states and with it they control the incomes and destinies of the rural people dependent on those lands.

The British Raj had an army with which to grind down and out the sovereignty of India; environmentalists have the press, the courts,

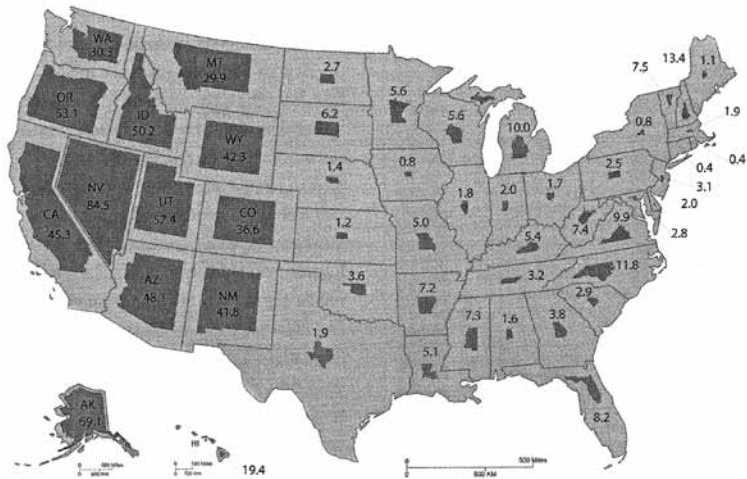
and urban supporters who know nothing about producing the natural resources upon which we depend, but who are entirely willing to believe that their fellow citizens in the west are stupid and craven. Anthropologists call this "reterritorialization" when a dominant culture, wanting to take over the lands of a subordinate culture, tells itself a pretty little story about its own heroism in saving the savage wrong-headed natives from themselves.

The message that the "natives" hear is: "You can either make a living on our terms or you can disappear." As one climate scientist from a rural background said to me: "Environmentalists refuse to understand that, when agricultural people sit down at the bargaining table with you, they have put their entire lives on the line; in turn, they feel that environmentalists have nothing on the line, other than their intellectual pride."

Rural people have been betrayed in these negotiations so many times that it is a deep embarrassment to this environmentalist.

WHO OWNS THE WEST?

Federal Land as a Percentage of Total State Land Area



Data source: U.S. General Services Administration, *Federal Real Property Profile 2004*, excludes trust properties.

We are now paying a high price for this. I recently had lunch with a member of an estimable Wyoming ranch family, a hard-headed and light-footed daughter of the High Plains, and Theodore Roosevelt IV, for whom I write speeches. Ted is currently the Chair of the Cleantech Initiative at an international bank. I have seen people walk by his office -- an office with pictures of himself at age 4 holding President Truman's hand, with old photos of President Teddy Roosevelt's Great White Fleet, with pictures of Ted shaking hands with heads of state -- and this is what I overhear: "He's one of the most decent men on Wall Street." I have no argument with that. Coming from such a privileged background, he is as egalitarian, and fair-minded, and tough, and hard-working as his ancestor. I have no argument at all with Ted's character, but I have many other arguments with him. (It's another measure of the man that he puts up with it.)

So, Ted was gracious and perfect at lunch; he offered a suggestion or two for possible public lands management compromises.

Annaliese told him those were good ideas and she would pass them along. Since we were at the Harvard Club, he told the story of the "Roosevelt Cappuccino" offered on the menu. (Always a colorful family, TR didn't feel the usual cup was large enough, so he designed his own!). Then, Ted left; he had deer to hunt that afternoon.

Annaliese and I had time to finish our mammoth Roosevelt Cappuccinos. She looked over at me and said: "We all love Ted. In fact, we loved President Roosevelt; we love much of his public lands legacy. But he doesn't get it. Why do New Yorkers get to call the shots on their own landscape but not the people of Wyoming or Utah or any the public lands states? He doesn't get it: We do NOT trust environmentalists AT ALL."

She and I discussed the fact that there are Republicans and rural Americans who entirely believe that climate change is happening, but who won't admit it because they feel "you cannot open the door to these people, without them running you over like a Mack

truck.” You open the door a crack and before you know it, they’ve absconded with your cattle because of air-polluting cow farts!

Environmentalists for the most part have premised a global economic scheme for mitigating climate change on raising the cost of energy -- whether through cap and trade or a tax. What they refuse to acknowledge is that prosperity has followed low energy prices and environmentalism as a movement has followed prosperity. It’s a Gordian knot.

As many of you are engineers, I believe that you already know that addressing climate change is likely to be a technological, determined, step by step progression. Why? Because the grand, global economic prescriptions disadvantage the disadvantaged everywhere, and there is no political will to undertake them -- much less the political wisdom to parse the meaning of fairness for all of all global communities.

In the United States, I don’t know any environmentalist who acknowledged the core problem with the cap and trade bills once under consideration. We do not have a uniform system for energy delivery in our country; in each of several regions, the energy costs are pegged to the fuel that dominates delivery during peak hours. Fully depreciated coal plants produce the cheapest electricity and serve the poorest (mostly rural) in our country. Increasing the cost of energy will not get us where we need to go in terms of human development and poverty alleviation.

The International Energy Agency expects Asia’s demand for energy to rise by about 40 percent in the coming decade; this compares to a rise of 5 percent in North America.

China is already a net importer of coal, and -- largely due to a staggeringly difficult topography for natural gas exploration - it is likely to become a net importer of LNG. The IEA considers India to be in approximately

the same position. There are critical issues tied to energy that include food security and water resources. Most economists think that we have wrung all we can out of food prices; the decline in food prices that helped to lift many from poverty is not likely to continue. An increase in the cost of energy will further put that at risk.

The environmental movement has long seen itself as David versus the Goliath of industry and human greed. Often they were. But they institutionalized a perversely one-sided view of humans as always the destructive force, outside of nature; a force needing to be curbed, reduced, minimized and -- in some cases -- expunged from the land.

That is not the message of humanitarians. When institutions refuse to vigorously examine their own biases and cultures, they become moribund; they repeat the same old patterns, and they fail. Until the environmental movement can take a hard look at itself - until it can become human-centered - it will continue to antagonize more people than it enlists.

In the meantime, for robust human-centered solutions to climate change, I am betting instead on the rapacious and irrepressible energies of industrial and market innovation; I am betting on the problem solvers among us, and that would be all of you.

And, by the way, America’s ranch community is deeply touched that you would have any interest in their issues, when their our own people often do not. I have been entirely impressed with IIT, such that I wish I had any aptitude whatsoever for math and could join your ranks. Unfortunately, as I am undone each month by my own checkbook, I am doomed to remain a writer. ●

Trail Blazers in Participatory Democracy

For a country mired in corruption, the Right to Information Act (RTI) is perhaps the single most powerful piece of legislation enacted this side of the millennium. It is also perhaps the best drafted Act of its kind in the global world. Enacted in 2005, it has already emerged as the basic litmus test for accountability in public office. A key guiding force behind it (although she will never accept it) has been noted RTI activist Aruna Roy and her saathies from Mazdoor Kisan Shakti Sangathan.

Starting her career with the Indian Administrative Service, Aruna Roy got an insider's view of the working (or lack of it) of the Indian beauracracy. Not happy with what she saw, she quit the IAS to devote her time and energies to social and political campaigns. She is one of the founders of the Mazdoor Kisan Shakti Sangathan (MKSS), a grassroots, peoples organisation. The agitation for minimum wages for farm labour by MKSS introduced the concept of Jan-Sunwai or public hearings, demanding transparency in public works and accounts. This movement naturally evolved into the National Campaign for Peoples Right to Information, culminating in the passing of the Right to Information Acts. Aruna Roy has also been instrumental in formulating the National Rural Employment Guarantee Acts. As a member of the National Advisory Council, she has effectively espoused the cause of

citizens' entitlements.

Aruna Roy firmly believes in collective action and efficacy and is quite averse to iconisation of individuals. In 2000, the Ramon Magsaysay Award for Community Leadership was bestowed on her. Acknowledging the contributions of her fellow campaigners, she requested that the award be presented to MKSS. Since the award is given only to individuals, she accepted it and put the award money in a trust to support democratic campaigns.

RTI today has proved to be a strong weapon in the hands of people, for ensuring transparency in government departments and containing corruption. Yet, as the issue of corruption grabs centre stage again and again, the role of RTI has emerged as more important than ever before. How has the Act performed so far? How far has the country come in the transparency journey? The recent trend to focus on exemptions of the Act, how worried should we be as citizens?

Who better than Aruna Roy to tell us about it all? The bees were fortunate that we had our very own Shailesh Gandhi, distinguished alumnus, first Chairman of IITBAA, RTI activist, retired Central Information Commissioner, to pose the questions. The result is not just an informed analysis and review of the status of RTI but insights from those working in the interstices of participatory democracy. It is a privilege and an honour to present to our readers this "cack session" with Aruna Roy and Inayat Sabhikhi.





Interview with Aruna Roy with asides from Inayat Sabhikhi Shailesh Gandhi

SG : You have been the champion of Right to Information for over two decades. It is acknowledged that your contribution in getting the RTI law was the greatest. How would you rate the progress of RTI in the last seven years? Do you think the Country has travelled significantly on the transparency journey?

The Mazdoor Kisan Shakti Sangathan (MKSS) is an organisation of equals and the charting of the struggle and the focus on issues came from this collective. Initially, from 1990 to 2000, we used to keep our media projection in tune with the nature of our collective. No one's name featured, only the MKSS. After 2000, the projection by media of 'Aruna' was a great embarrassment. The MKSS lost the anti-iconisation battle because the pursuit of the basic RTI struggle was much more fundamental. This is the one campaign - the issue of celebrity focussing and iconisation, with the consequent set of events that follow - which I have lost comprehensively. Memories of the collective strength of us all in those days, brings together the most amazing stories of individual capacities knitting into the fabric of an important struggle and campaign.

The most authentic honour the MKSS has received was in Bhim, the local town near Devdungri. The town has known us well. It was witness to the first MKSS Jansunwais,

Revolutions are of different kinds. The RTI has been a quiet revolution; impacting governance in multifarious ways, from policy and legislation to access for the poor and the vulnerable to basic services.



the dharnas and even hunger strikes in the early 90s which disturbed the power structure in Rajasthan. In those initial years, local action pushed CM Bhairon Singh Shekawat to keep us under surveillance.

In October, 2010, 20,000 people got together in Bhim, to celebrate Dusshera and recognise and honour the MKSS. This was principally for the contribution to RTI and MGNREGA; and to celebrate the fact that the local area was now on the map of people's politics. They sat 12 of us together. There was to cite a few, Mohanji, a dalit singer of Kabir, who was instrumental in insisting that records needed to come out, Lal Singh, who laid the foundation of the MKSS with his struggle for land, Shankar and I, and Bhanwar Megh-wanshi, a young dalit intellectual recognised for his writings and his undeterred struggle against any kind of discrimination. We sat in a row of chairs. Then came a garland 20

feet long, and all 12 MKSS saathies were garlanded together! That is the best recognition the MKSS and I will ever get. If people who have seen us through our travails at such close proximity, recognise the collective nature of our work, it will belie the myth that one person can work magic in social action!

The legal entitlement was drawn up by a group competent to do so, under the Chairmanship of Justice Savant, then Chairperson of the Press Council of India. The MKSS was represented by Nikhil (Dey). State laws came with local campaigning and political support, a weak law in 2002 and later a strong national legislation was passed in 2005. The whole process involved and allowed multiple skills to contribute from a variety of sectors. Anyone who participated with the Right to Information then and later knows that it was a democratic, participatory, broad based peoples' movement. The contribution of a variety of people made the law strong. It has also created a community of RTI users who protect the law and keep constant vigilance to make sure it is implemented in the spirit of the law; to prevent dilution and for expanding disclosure and minimising opaqueness.

Revolutions are of different kinds. The RTI has been a quiet revolution; impacting governance in multifarious ways, from policy and legislation to access for the poor and the vulnerable to basic services. This has been well documented. The RTI has based itself in a socio-political reality despite government systems being straddled with its lack of ethical intent and a systemic corruption ridden underbelly. It has established a process through which we can challenge and question the system. While it has questioned the system, it is pragmatic, recognising all the problems that exist in working a democratic system. The forging of the legitimate legal entitlement kept its constant communication alive with the struggle. The result is a law,

with immense and simple practical applicability for every citizen to use.

This process also did not discount the great value of the rule of law and its processes. The RTI has also brought about some fundamental shifts in power relationships, which we hope will one day shape a relationship of equality based on accountability and transparency. This can be seen in the gradual and grudging move from an environment

Unfortunately the performances of the Information Commissions leave a lot to be desired. It is saddled with high pendency, understaffed commissions, and complete lack of transparency in appointing Information Commissioners.



of secrecy to one of reluctant but growing openness. Therefore, despite the peculiar combination of inertia and active corruption in governance, a difficult but significant shift is now visible.

SG: *How do you rate the performance of the Information Commissions?*

The Commissions have placed themselves in the unenviable position of wanting to hunt with the hounds and run with the hares, to quote a once popular adage! Except for some, most of them do not see their primary function to lie within the RTI law and the Constitutional framework and clinging loyalties with the status quo remain. More often than not, their attitude to their role lies within the aspirations and fears of the ruling class.

Many have also been afflicted with the fear that 'too much' transparency can impact

governance negatively. It is a pity that the Indian Commissioners have not studied the work and the commitment of people like them all over the world, who are proactive and have managed to reduce arbitrary governance and corruption.

Unfortunately the performances of the Information Commissions leave a lot to be desired. It is saddled with high pendency, understaffed commissions, and complete lack

But from Lahul and Spiti in Himachal Pradesh to Koodankulam in Tirunelveli District in Tamil Nadu, RTI has been used by the marginalised and the poor in critical, creative and imaginative ways.



of transparency in appointing Information Commissioners. The selection process - so vital to the proper implementation of the law - still seems to lie within a structure that promotes the most regressive of possibilities. Despite the Act laying the post open to civil society, lawyers, journalists, etc, there are a disproportionate number of bureaucrats occupying these posts.

Delays continue to undermine the efficacy, role and authority of the Information Commissions. They may still use their powers to charge penalties. However, the challenge now is to push the Commission to recognise that its fundamental role is as the keeper of the law. The campaign has to reactivate its voice in the public domain to pressurise the Commission to perform its primary role - to ensure transparency and protect constitutional rights.

SG: *I feel that some Supreme Court judgements in the last year, expand the scope*

of the exemptions in the Act. Some of us also feel that the Namit Sharma judgement may make the Information Commissions dysfunctional. What are your views?

The emphasis on the exemptions is certainly a very troubling aspect of this judgement. One of the biggest strengths is that the RTI Act has a clear presumption towards disclosure. Even in Section 8, which deals with exemptions there is a proviso - of a public interest over-ride. However, public authorities scramble to get themselves exempt from the law or else try and use this provision to deny information. Therefore, Commissions should and can set the tone for compliance and can give a clear message that invalid exemptions will not be acceptable. They will be able to influence not only information Commissioners, through these judgements, but also Public Information Officers showing by precept and interpretation that a more accurate use of the exemptions under the Act would be permissible and desirable.

With reference to the Namit Sharma judgement, if the Supreme Court's orders about a two-member bench and the appointment of "preferably" judicial officers as commissioners are followed, all Commissions may be grounded. The Central Government has filed a review petition, and the State Governments already tardy in their selection of Commissioners are disinclined to begin the process with the add-on of judicial recruitment. This can only lead to more chaos. But it is also a violation of the fundamental spirit of the law as the Commission was designed to be citizen-friendly. A preference towards judicial officers as commissioners will bring in judicial procedures and a mindset which will push Commissions into becoming inaccessible courtrooms. While the suggestion might be useful in administering justice in criminal or civil law, it may defeat quick and effective

delivery of information. The organised custodians of information who can hire lawyers will benefit, and the ordinary Indian citizen will be placed at a disadvantage.

SG: *Most of your work is for the poor. How do you think RTI has worked for the poor?*

The Central Information Commissioner said the other day, that at a conservative estimate some 2 crore users of the RTI have been recorded. Many rural users go unrecorded. Random sampling has its problems. But from Lahul and Spiti in Himachal Pradesh to Koodankulam in Tirunelveli District in Tamil Nadu, RTI has been used by the marginalised and the poor in critical, creative and imaginative ways. From the PDS to illegal detention, accessing information has delivered results for them. The significant change is from a perception of impossibility to one of possibilities and hope. Nothing will come easy, but now diligence and perseverance does pay dividends. The RTI has worked in genuinely empowering the poor to claim their rights for a large number of basic entitlements. The examples are numerous. The constant stone-walling and suppression, has now changed to delivering most of the time. In this the penalty provision has worked to push the proverbially procrastinating bureaucracy to act.

Even in AFSPA driven administrations in the North East and Jammu and Kashmir the RTI is known and owned. In Manipur ‘gun widows’, women widowed by fake encounter killings, have used the RTI to get welfare. In J&K, the use of RTI by a peasant demanding to know the fuel budget of helicopters of the Chief Minister, who rarely travels by road, has excited the imagination of the people. The CM now travels by road and has thereby contributed to its maintenance. There have been critical and imaginative uses of the RTI, from tracking absent school teachers to miss-

ing FIRs and the whole gamut of caste and minority based atrocities. In Gujarat victims of communal violence have used it to get access and dignity in the face of terrible odds. In conflict affected areas of Chhattisgarh and Jharkhand, the RTI has been an effective tool to impact and adjust power balances. In effect, it has deepened and continues to deepen democracy, leading citizens to exercise their right and obligation to make the system work better.

SG: *Your comments on the relevance of movements in the political landscape?*

India’s special understanding of political action as wider than that of electoral political structures, goes back a long way. The immediate history is clearly seen in the National Struggle and its aftermath, when Gandhiji declined office but continued to fight on critical issues from “outside”. Many of us fall in this political tradition. Political movements fill the gap between constitutional promises and implementation, political, economic or social. Movements by nature have mostly been issue based. One noteworthy exception is JP’s (Jaiprakash Narain) Sampurnakranti which encompassed the entire country with a desire to assert democratic principles. That powerful movement, which spread like fire, without media publicity, managed to prevail on cross sections of people disillusioned with the country’s governance. The movement was threatening enough to provoke the imposition of “Emergency” by the ruling party.

The Mazdoor Kisan Shakti Sangathan, of which I am a member, falls in this tradition, and is a part of the non-party political process. We feel that there is a need to occupy this political space, based on ideology and advocating due process. This works in the dialectic with electoral politics. The mode of social movements with its constant critique has helped India’s Governments keep some of

its Constitutional commitments. This political space is not weighed under the demands of 'real politik' and therefore more open, and can stand by principles. From something as specific as minimum wages in MGNREGA to looking at GM foods and huge scams, communal conflicts and denial of civic and democratic rights, movements have continually helped work towards a more ethical and accountable India.

The RTI would not have had this trajectory if it were not for the tradition of political movements in India.

SG: *Could you please share your dream for RTI and India after a decade?*

A transparent and ethical system of governance is only possible with the RTI. Its use and implementation will narrow the gap between promise and performance. Hopefully it will work to reduce inequality, inequity and injustice. The poverty and inhumanity that we tend to look at as insurmountable will be unpacked into many resolutions of democratic needs and demands. The conditions of the poor will change, only if the billions spent in the name of our people benefit them. The popular slogan the MKSS coined in its initial campaigns, "Hamara paisa, hamara hisab" will be the norm. The nature of representative politics will push it to be mandated by people, and the vote will work to deliver continuously for 5 years, all through. It will be tested by delivery and authentic conveyance of people's demands, be it legislation, policy, procedure, government orders, etc; relating to economic, social and politically accountable power centres. The critical need for policy and legislation to be mandated by India's citizens will be the norm. Violence will be seen as an offence whether the State or its citizens practice it. Poverty will cease to be. The ultimate dream is that there will be reason and rationality in public life.



At a more practical level, section 4 of the Right to Information law, which mandates proactive disclosure of all relevant information by all public authorities, will be a part of normal procedure. If the government truly adopts the spirit of transparency that this legislation seeks to promote, and discloses all relevant information, the law would have accomplished its goal. Secondly, that a Grievance Redress Bill will be passed to take care of a bulk of the RTI applications related to everyday grievances that the RTI is now doing by proxy.

The demand for transparency is a double edged sword. It demands from the user the same integrity that we demand from 'the other'. In this dialectic between the individual and systems, we hope a better system emerges to address corruption and the arbitrary use of power, to make us better people. Public Ethics is the first step towards creating a better society, governance and a country. I do hope that after a decade we will have a strong grievance redress mechanism and a pervasive culture of transparency and accountability in governance.

To echo you Shailesh,
Satyameva Jayate !!

Feet of Clay

Ali Baba

It's hoped that you'll
have the code to live by!!



This is not a topic on which we like to dwell often, if at all. So I am violating a taboo by raising it in public, but it is high time we recognize it. Over the past few months we have seen some iconic IIT alumni bite the dust with the most recent one being squarely indicted for breach of trust in US. Had the scene of action been India, the pronouncement would very likely have been quite different. Till the other day, any one of us would have been proud to have such a record of accomplishments and service but now one is not so sure. It has always been a thing to brag about, how one managed to sneak in ‘cog sheets’ into the exam hall or hide them in the washroom. The ingenious ways in which one had helped out a friend during a tough (or even not-so tough) exam/assignment were the stuff of legends. If one had scruples about ‘cheating’ for oneself, it was quite ok so long as the beneficiary was someone else. What’s the big deal in passing on a friendly tip to someone who goes onto make a killing at the stock market? Obviously, a very big deal!

In the late nineties, I happened to be overseeing the JEE exam at a centre in Kota. As per normal protocol, we arrived at the centre a day before the exam to inspect the arrangements made for the conduct of the exam. I was impressed to see a posse of policemen at the entrance and commented to the principal if such security was really needed. He gave

me an amused look and said it was not for JEE but for another college exam that was in progress. Apparently, it was not enough to have invigilators to prevent copying because the students are often armed and would not flinch from shedding blood (the invigilators’, that is) in the pursuit of their academic ambitions. I was shaken but thanked my stars that IIT students do not come to the exam armed. But would they not if they could get away with it?

That seems to be the million dollar question, can I get away with it? Unfortunately, the loose ethical standards to which we hold ourselves accountable, blurs the difference between right and wrong. Given the premium that the system places on ‘success’, the temptation to use any means, fair or foul, is great. We have all known guys (and gals) in our class who cheated on their submissions and exams, where are they now? Many probably realized that the world outside IIT may not be as forgiving and decided to play it straight, by and large. Others, who were more daring, were saved by the dysfunctional judicial system. And some perhaps thought they were above the law, but a few did spend time behind bars. Are IITians any different? Should they not be?

We pride ourselves on being the cream of the nation, but we do know enough physics to realize that like cream, scum also rises to

the top. In our pursuit of world class, are we forgetting that there is more to it than mere numbers. I rarely fail to get impressed when I am presented with a CV by one of our students (for a reco letter) until I come to the bullet point that describes his/her achievements in the summer research project that was done in my lab -- wait a minute, did you really do all this? A few years ago one of the students in my class showed interest in the sensors that had been developed by my startup and wanted to know if sensors could be designed for testing for allergies. I advised him to study literature on diagnosis of allergies, he did some perfunctory search of the literature and talked to an allergy specialist I had suggested and probably met me not more than a couple of times that summer. Next year he asked me if I would write a recommendation for him and I agreed but told him to send a brief CV to enable me to draft my recommendation. In his CV he claimed to have done a research project under my supervision and had developed sensors for diagnosis of allergies and the sensors were soon to be commercialized. When I told him that this claim was just not true and it was unethical to put it in his CV, he was unmoved and said, well, if you don't like it I will delete that statement. However, he was very shocked when I refused to write him a recommendation letter. In the past, as many of you will recall, when hard copy of recommendations were to be sent, techniques for opening sealed envelopes and re-sealing them were common knowledge. Long before Raju Hirani conjured up Munnabhai MBBS, we had known of someone who had written GRE for another. Out-going department/institute secretaries routinely make exaggerated claims of what they have achieved during their tenure and sometimes have the cheek to send public mails listing them. Our out-going department GSec sent a farewell message last year with claims to have – 'initi-

ated the honours (academic) program' and 'established department library' – not for a moment deterred by the fact that the library has been around since as long as anyone can remember and student secretaries cannot initiate academic programs. Apple polishing is one thing but presenting lemons as apples is quite another. A few years ago another student wanted a letter to a foreign embassy stating the summer internship he was doing was part of the academic program, so as to enable him to get a visa. When the letter was refused since the internship was not part of our academic program, he was very upset and brought his elder brother to argue his case. He could not believe such a small thing was being refused and said, 'isme tumhara kya jata hai?' He honestly could not understand why anyone would make such an issue about telling a small falsehood to the embassy for such a 'noble cause'.

There is a grey area between pulling a fast one for a laugh and telling a lie for unjustified benefit. The laissez-faire and chalta hai attitude we often exhibit when faced with such issues is responsible for the doubtful choices we end up making in life.

A piece of advice that visiting distinguished alumni have consistently given to students is the importance of integrity but is anyone listening?

Lest you get the impression that it is only students who drift to the wrong side of the grey area, an even bigger taboo is to talk about the not so respectable doings of the staff and faculty. The only reason for not dwelling on them in this column is because one cannot do justice (if it can be called that) to it within the word limit set by the Big Bee.

Prof. Aliasgar Qutub Contractor

The Cabinet Re-bungle

Grumblebee



In this story, Grumblebee continues to report on the famous bungling that takes place at MGPL - Madam G's Private Limited - with unfailing regularity. The July issue of Fundamatics had focused on wannabe JEE Huzoor Uphill Cymbal and the October issue had dealt with the Coalgate bungling. In the 3rd story of the series, Grumblebee unearths the plot, in which MGPL tries to go eco-friendly by patronizing a herbal toothpaste. The bunglers have all been shuffled recently like a deck of cards that contains only jokers. A few new faces join the old dramatis personae that consist of P Chillum Humdrum, Shudder Jowar, Pepsodent Prefab Musterjee, Uphill Cymbal, Jari Rummage, A Roger, S Calorie-Muddy, and more, all led by a blue-turbaned, remote-controlled, head nodding COE - Chief of Estate.

The meeting at Bungalow 10, Warpath situated in MGPL was about to commence. There were some new faces this time. All the bunglers had been rewarded in Operation Re-bungle by getting new responsibilities assigned to them, so that they could practise their bungling talent in new departments. And some people with a known propensity for bungling had been drafted in afresh. Madam G, ice maiden as ever, looked at Alka Yagnik and nodded. The nod signaled that Alka should start with the bungle anthem of MGPL. Melodious as ever, Alka sang out these lines from a famous jingle.

*Vajradanti, Vajradanti, Vicco Vajradanti
Toothpowder, toothpaste
Ayurvedic jadibootiyon se banayi gayi
Sampurna swadeshi
Toothpowder, toothpaste, Vicco Vajradanti.*

“You all may have noticed that I have fired Jethro Tull after he bungled our anthem last October. Every Fundamatics reader is laughing at us because of Tull and his distortion of the ‘bungle-in-jungle’ number” Madam G said. “I have now got in Alka to sing our opening and closing anthems. You will understand the significance of the anthem soon. But let me start by asking the COE if he has called Oh-mama and congratulated him on getting elected in the estate abroad.”

COE started nodding his head vigorously.

“Can’t you wait till I press the remote?” Madam G frowned.

COE stopped nodding, but resumed immediately as soon as the remote was pressed.

“Ma’am!”, Uphill Cymbal piped in, “As the telephone operator of the estate, I dialed Oh-Mama and connected the call with the COE. But Oh-mama just said... ‘Hello! Hello! Who’s there? Stop making blank calls!’ . And he banged the phone down.”

“Well! Well! We have a COE who does not speak. And we have an operator who is not a silent operator. Anyway, gentlemen! I must

congratulate all of you on some top class bungling. You have all been rewarded with new assignments in our operation re-bungle.”

“Ma’am!”, the operator spoke again, “I am glad that you have rewarded me by making me focus on my telephone operator’s functions. This dual responsibility of handling the estate’s power plants was getting to me. Even the bees at Fundamatics had predicted that you would reward me. Let me read out what the bees wrote in the July issue. They had said....*Cymbal is trying to bungle up and he has succeeded. He is bound to be rewarded by Madam G and moved somewhere else. Someone else will come in and it will take a while before he starts to bungle....*”

“Yes Ma’am! I’d like to thank you too” Salmon Cursed-it chimed in, “I shouted Shut-Up and Get-Out and I’ll-bash-you-up at the press conference and you rewarded me by making me the estate’s travel agent. I can now go abroad and shout Shut-up and Get-out in different languages.”

Madam G raised her hand and shushed everyone into silence. “Gentlemen! I have convened this meeting to tell you that Grumblebee called me this morning. He said that the next issue of Fundamatics is going to focus on ecology, environment, and similar stuff that none of us know about. If we don’t bungle in that direction, I’m afraid we will

not be featured in this issue.”

“Ma’am, I have an idea. You have put me in charge of all the newspapers and the TVs of the estate. People tell me that when they run out of manure in biogas plants, they use my speeches as a substitute. If you let me write for Fundamatics, the copies can be used as a substitute for manure of the bovine variety.” This came from Menace-Tawry.

“Oh Come on Menace! What you speak is a lot of hot air that has contributed to global warming. We need Madam G’s stare to freeze the earth back again to the ice age” Jari Rummage opined with wisdom derived from some world class faculty from his time.

Madam G spoke up again, “Gentlemen! I have given some thought to this. Our hands are soiled. Our linen is dirty though it gets washed in public everyday. But our teeth are still white and sparkling, except Shudder Jowar’s. So let’s change our toothpaste. Let’s switch to a herbal toothpaste that will sound eco-friendly and....”

“Ma’am, you’re being unfair!” Pepsodent Prefab Musterjee interrupted. “Ever since you made me Rasta Potty, people still do potty on the roads. But while I was busy playing with the rubber stamp, you changed our brand from Pepsodent to Coalgate just because this Justwell fellow told you to. Now, you want to change the brand again...”

Justwell got up from his seat agitatedly. “Ma’am! On my suggestion, you made us all switch to Coalgate in the previous issue of Fundamatics. We have been using it religiously since then. Our teeth will definitely become as black as our money and our deeds. Can you not be a bit more patient?”

“I understand your anxiety gentlemen. But let us understand that Coalgate will not get us a feature in Fundamatics. If we switched to a herbal toothpaste like Echo Vadra-danti, we will make it into Fundamatics’ special anniversary issue in December. Think about it.” Madam G advised.

The CFO P Chillum Humdrum raised his hand and said, “I second your suggestion Ma’am. I use Echo Turmeric Vanishing Cream to make files vanish from my office. That’s why, no one can find my diagrams of a spectrum. But we are all busy with our own bungling assignments. Who will bungle with this Vadra-danti toothpaste?”

“I have it all worked out” Madam G smiled. “I have roped in Raabert from villain Ajit’s gang. Earlier, I poached on his Number 1, Number 2 etc., Now, he’s left with only his Mona darling. As a matter of fact, Raabert knows how to bungle well. I asked him to do a deal with LDF (Left Democratic Front). But he went ahead and struck a deal with DLF. He’s just like any of us. So now that we have

decided to patronize Echo Vadra-danti and we are assured of a place in Fundamatics, let us all rise and stand while Alka sings our closing anthem.

Alka Yagnik sang....

*Vadradanti Vadradanti, Echo Vadradanti,
Coal powder, loot-in-haste
DLF imaraton se banaayi gayi
Adhi videshi, coal powder, loot-in-haste
Echo Vadradanti.*

A Fiery Storm

Tejas Shyam

The flame spewing forth venomous ire,
unrest evident in its glorious daze,
as it prepares to gut the living pyre,
leaving the world in a smoky haze.

Not aught can douse its violence,
beyond the realms of control it flows,
leaving behind a deathly pale silence,
death and destruction filling the cup of woes.

Indeed a strong distasteful spark,
difficult for even the calm to resist,
the flame by nature obstinate and stark,
how then could it desist?

Raging and burning all in its way,
unmindful of the heat enlivening itself more,
flames can be put out in a day,
but for enraged fervour there is no cure.

Spent and exhausted- the ire still shown bright,
the flame finally ceases to further harm,
its lack of bite not a lack of might,
the testimonial ashes still smouldering warm.

Why test the patience of fire?
why play with that which can kill?
be warned- the consequences can be dire,
the road post destruction- uphill.



Tejas Shyam

Tejas is a B.Tech. and M.Tech (Dual Degree Program, Dept. of ME&MS)

of the Batch of 2007-2012. In addition to having been a professional freelance journalist with the Times Group for over 2 years, he is an extremely passionate poet. He has penned down a collection of more than 50 poems. Through his poetry, he tries to capture the ephemeral yet overpowering human emotions as they take shape.

Economy, Ecology and Nonviolence

Sudheendra Kulkarni

Are we as a global community living — relatively speaking and speaking in terms of inter-state wars — in the most peaceful times in modern history? It's hard to believe. However, this is what is affirmed by a study conducted by Steven Pinker, a renowned psychologist from Harvard University. "Global violence has fallen steadily since the middle of the twentieth century," wrote Pinker in his ground-breaking essay 'History of Violence' in *The New Republic* (March 2007). "The number of battle deaths in interstate wars has declined from more than 65,000 per year in the 1950s to less than 2,000 per year in this decade. In Western Europe and the Americas, the second half of the century saw a steep decline in the number of wars, military coups, and deadly ethnic riots... today we are probably living in the most peaceful moment of our species' time on earth."

Of course, not all forms of man's violence against man are visibly in decline. Nevertheless, it is greatly reassuring to know that conflicts akin to world wars are behind us. (World War I caused 16 million deaths; World War II was deadlier — over 60 million people died, 20 million in the former USSR alone.) Hopefully, such horrendous eruptions of violence may not recur again in our increasingly inter-connected and inter-dependent world.

The mode of social movements with its constant critique has helped India's Governments keep some of its Constitutional commitments.



But what about man's violence against Nature? The answer to this question, sadly, is the very opposite of the one to the question posed at the beginning of this article. The non-human species of life on this planet are so threatened that they are living in the most violent times in their history. Here is some irrefutable evidence about the egregious extent of violence that man has perpetrated through his 'colonialism' of other species on earth. Paradoxically, this eco-colonialism has gained momentum after the era of conventional colonialism came to an end in the aftermath of World War II. A recent study (October 2010) by the International Union for Conservation of Nature (IUCN), the world's oldest and largest global environmental network, has concluded that Nature's very "backbone is at risk". The most comprehensive assessment of the world's vertebrates confirms "an extinction crisis with one-fifth of species threatened. On average, fifty species of mammal, bird and amphibian move closer to extinction each year." Another study conducted by IUCN partners

suggests that over one-fifth of all plant species are threatened. “Most threatened plant species are found in the tropics and that the most threatening process is man-induced habitat loss.”

Yet another study (2010) sponsored by the United Nations, called ‘The Economics of Ecosystems and Biodiversity (TEEB)’ calculates “the cost of losing nature at US \$2-5 trillion per year, predominantly in poorer parts of the world... putting the livelihoods

Clearly, Nature’s highest creation has turned out to be the worst destroyer of its other creations.



of millions of people dependent on these vital resources at risk”. Forests, one of the most beautiful and benevolent creations of Mother Nature, are being felled with impunity. Oceans, rivers and other water bodies have been polluted, their effluents often reaching toxic levels and killing countless number of aquatic creatures.

Closer home, in India, destruction of the environment has been taking place at an alarming pace and on an unconscionable scale. Nothing illustrates this better than the fate of Mother Ganga, India’s most sacred river and the cradle of our civilisational heritage. This cherished symbol of our national unity and integrity that has nurtured and protected the Indian civilisation over the millennia, is itself in need of protection today. Unplanned urbanization, indiscriminate industrialization, and reckless misuse of its waters have taken a heavy toll on the river. The level of pollution in the river has risen to life-threatening levels. Indeed, many life forms in the river — and perhaps the river itself — face extinction.

Participating in a discussion in the Lok Sabha in May 2012, Jayanti Natarajan, Minister for Environment and Forests, bemoaned the fate of the river by saying that India needed a “National Commission to Prevent Atrocities against the Ganga”.

What is happening to River Ganga is symptomatic of the violence that we Indians have been perpetrating on almost all other sacred endowments of Nature – rivers, lakes, ponds, forests, mountains, beaches and the delicate coastal ecology near our big cities.

Something similar is happening in China, too. In his masterly book *China: A History*, John Keay (2008) makes a biting comment on the ecological destruction in communist China, as a result of its economic growth at a blinding speed, in the past three decades. “The Yangzi, in which Mao Zedong famously wallowed at the height of the Cultural Revolution, might now kill him, as it has most other river life...Carbon emissions in China rate as the highest in the world, noxious fumes permanently blanket whole cities, and industrial effluents poison such water as still flows in the refuse-choked river beds.”

Why is this happening? Because most countries in the world have adopted a model of economic growth that has given rise to historically new forms of violence. Economic ‘progress’ has resulted in — nay, it has actually necessitated — the most virulent attacks on the environment, the likes of which had never been seen in human history. As mentioned earlier, even though we have not witnessed in the past few decades mass killings of human beings on a scale seen during the two World Wars and other smaller wars in the twentieth century, man’s savagery on the other species on Planet Earth can only be described as an unending holocaust. The irony is that other species are being exterminated in the name of the “development” of the human species.



Vastraharan

Clearly, Nature's highest creation has turned out to be the worst destroyer of its other creations.

Kenneth E. Boulding (1910–93), an American economist and peace activist who was greatly influenced by the life and teachings of Mahatma Gandhi, had posed some pertinent questions: "Are we to regard the world of nature simply as a storehouse to be robbed for the immediate benefit of man? . . . Does man have any responsibility for the preservation of a decent balance in nature, for the preservation of rare species, or even for the indefinite continuance of his race?" Since Boulding was also a poet, he expressed the same concern in the following limerick.

*With laissez-faire and price atomic,
Ecology's Uneconomic,
But with another kind of logic
Economy's Unecologic.*

Gandhiji had exhorted us: "The greatness of a nation and its moral progress can be judged by the way its animals are treated." On this criterion, the international community as a whole stands severely indicted.

Obviously, resolution of the conflict between economy and ecology has become one of the most pressing responsibilities before the human race in the twenty-first century. It is not an easy task, nor are there any quick-

This philosophical conviction should lead us to effect such changes at the behavioral level — in the global, national, institutional and individual spheres — that will fundamentally re-orient our economic activities.



fixes. Discharging this responsibility entails serious initiatives at three levels: philosophical, behavioral and technological. At the philosophical level, we must redefine 'human development' by rediscovering man's obligation towards all the other creations of God. Once again, it is educative to turn to Gandhiji, who affirmed that lording over nature and lording over other "inferior" people are both manifestations of colonialism. "It is an arrogant assumption to say that human beings are lords and masters of the lower creatures. On the contrary, being endowed with greater things in life, they are the trustees of the lower animal kingdom...(We must) realise identity with even the crawling things upon earth, because we claim descent from the same God, and that being so, all life in whatever form it appears must essentially be so."

This philosophical conviction should lead

us to effect such changes at the behavioral level — in the global, national, institutional and individual spheres — that will fundamentally re-orient our economic activities. In brief, economics should be geared towards meeting the basic needs of all human beings, while drastically reducing the production and consumption of non-essential goods and services. God has not granted to us human life — the highest form of life, let's remember — simply to live as reckless consumers on this planet. We are all born for a higher purpose, a purpose that each of us has to discover for ourselves through self-reflection, guided by mankind's various ennobling cultural and spiritual traditions. Finding the purpose of life will oblige us to establish a harmonious and nonviolent relationship between man and man on the one hand, and between man and nature on the other. In other words, nonviolence and compassion in the broadest sense of the term should begin to guide our economic systems, policies, programmes and practices.

What can help our efforts at the philosophical and behavioral levels are the ongoing revolutionary advancements in science and technology. High-speed, low-cost and ubiquitous Internet connectivity; nanotechnology; artificial intelligence; robotics; new materials; molecular manufacturing (3-D printing) of many basic human needs in a decentralised manner and with minimum utilisation of natural resources; augmentation of solar and other renewable sources of energy — all these boons of science and technology, if wisely used, will help mankind not only to arrest the destruction of Nature but also to begin its regeneration. These technological boons are our reliable allies in practising the “Religion of 3-Rs” — Reduce, Reuse, Recycle —, which ought to guide economics in the twenty-first century for the protection of all the living and non-living endowments

of Mother Earth.

People in India have been reciting the ‘Shanti Path’ since the beginning of civilization.

*Unto the Heaven be Peace, Unto the Sky and the Earth be Peace,
Peace be unto the Water, Unto the Herbs and Trees be Peace,
Unto all the Gods be Peace, Unto Brahma and unto All be Peace.
And may we realise that Peace.
Om Peace Peace Peace*

As the above mantra shows, our enlightened ancestors understood — and strove to practice — peace or nonviolence in its most comprehensive sense. It's high time we followed them in the modern era.



**Sudheendra
Kulkarni
C80, Civil, H2**

Sudheendra Kulkarni, C80, Civil, H2 was a special aide to Prime Minister Vajpayee from 1998-2004. He is a member of the National Executive, Bharatiya Janata Party and is a well known columnist with the Indian Express. His recent book Music of the Spinning Wheel: Mahatma Gandhi's Manifesto for the Internet Age was launched in September by Dr. A.P.J. Abdul Kalam in the presence of L.K. Advani, Arun Shourie, Shashi Tharoor and several other eminent personalities. Comments are welcome at sudheenkulkarni@gmail.com

The Original Rainman

In Conversation with Rajendra Singh

Janak Daftary

My conversation with Shri Rajendra Singh, Magsaysay awardee and Jal Purush of India, was conducted in parts due to his constant travel. He is currently seized with issues related to the Ganga, specifically, and all rivers in general. He believes there are four problems with our 140-odd rivers – pollution, over-exploitation, encroachment and erosion.

After having travelled extensively across the country during his nadi yatras, he found that 80% of our rivers are polluted and the waters are not potable. A combination of municipal and rural (domestic) sewage-sullage, coupled with industrial effluents has reduced water quality to highly toxic levels. No longer does Gangajal downstream of Rishikesh remain ‘pure’ if retained over some months, like it did even 50 yrs ago.

Large-scale mis-management of water conservation and consumption has led to farmers, industries, and city dwellers drawing water from rivers much above their ecological capacity. Ecological flow is not being maintained in our rivers as a result of this over-exploitation, and riverine ecology is rapidly deteriorating. During a study conducted in the period of August 2002 - October 2008, it was found that groundwater depletion was equivalent to a net loss of 109 km³ of water, which is double the capacity of India’s largest surface-water reservoir.

The correct philosophy is conservation and recharging aquifers, as has been simply but tellingly achieved in Alwar. Arid land covering 8600 ha. has started producing 3 crops a year, river Arwari (along with 6 smaller rivers) has been rejuvenated and is once again perennial.



In the name of development, rivers are being increasingly encroached upon. Construction in and along rivers, always illegal, is altering the shape and flow, leading to silting, flooding and drying up. Dams being built for water supply and/or power generation are adversely impacting flow volumes as also agriculture and livelihood of people living along the river banks. Erosion is one of the negative outcomes of this flawed 'development'. Although this is a phenomenon limited to a few areas as of now, it is creating havoc in communities and fertile agricultural lands.

It is in this scenario that Shri Rajendra Singh opines on the development path being followed, and where its trajectory will lead us to in times to come. He also proposes correc-



Monsoon wait

tive measures for the nation as a whole, and IIT alumni in particular....

“Natural resources are being used sub-optimally due to individual greed, without due thought to their finite character. Underground aquifers are over-exploited with no thought for sustainability. Today, development for personal benefits overrides the need for long-term community welfare. This has resulted in inefficient management and production, and undisciplined use of water in particular. If rain-water is harvested for recharging aquifers and decentralised community-driven use of engineering and technology is implemented, it will ensure benefits to the community. With this in mind, it is recommended that only 40% be consumed while 60% be reserved for recharge of aquifers. Conservation and disciplined use leads to healthy management and sustainability, exploitation results in a product-oriented approach – extinguishing the resource for productivity. This is of a piece with killing the cow for meat and not having milk to drink regularly. Other resource areas like mining, forests, oil,

etc are also threatened by this philosophy. In short, sustainable development can only be possible without source depletion.

“Today, development begins by deviating from traditional knowledge, adversely impacting people, soil, forests, moisture, and air. This leads to destruction, distrust and distress, and finally to disaster. The community coped with floods/drought during pre-independence development, now its going

Modern science, limited to the material, is not to be used for calculating natural resources viz. jal, jungle, and jameen. We need to fall back on traditional wisdom for enjoying our ecological assets, to treat them with love and respect in order to derive joy from our rivers, mountains, greenery, soil, and all.



under literally and metaphorically. Making new at the cost of the old has made us lose sight of the objectives. Serious consequences like floods, drought, pollution, toxic emissions, et al are depriving us of the simple joys of living, and bringing sickness and insecurity instead.

“Modern day development has turned all our rivers into gutters, even while reducing flows. The correct philosophy is conservation and recharging aquifers, as has been simply but tellingly achieved in Alwar. Arid land covering 8600 ha. has started producing 3 crops a year, river Arwari (along with 6 smaller rivers) has been rejuvenated and is once again perennial. The community



has prospered leading to reverse migration, thanks to increased livelihood. The age-old way of harvesting rain has brought about this change removing the dependency factor, without damaging nature. It thus stands to reason that the definition of development needs to be changed. Technology and machinery should be deployed for creating physical and spiritual comfort, clean rivers, greenery, wildlife and bio-diversity, and not for over-exploitation to fulfil individual greed.

“In the 21st century, it is possible to achieve community-centric growth by way of industrialisation and urban/rural development as long as basic laws of nature are complied with for an integrated objective. Control of need and greed are vital factors for balanced growth. The primary force will derive from increased awareness in each and every citizen of the country. A village-to-river-basin development plan must evolve addressing education and health, factoring in natural resources. Urban plans can follow from this, logically and ecologically. Urbanisation needs to be reduced, reverse migration needs to be facilitated. Equitable distribution of natural resources will sustain urban habitation. The control, however, has to begin from the

village level. River rejuvenation and rain-water harvesting are essential for this.

“Having said all this, I feel the nation’s development has been based on wrong calculations, and hence the equation has led to a disastrous output. Modern science, limited to the material, is not to be used for calculating natural resources viz. jal, jungle, and jameen. We need to fall back on traditional wisdom for enjoying our ecological assets, to treat them with love and respect in order to derive joy from our rivers, mountains, greenery, soil, and all. Development will then lead us to prosperity, to the feel-good of living in harmony with nature. Only then will calculations define the real flow of development.

“My appeal to IITians would be to define a new paradigm of development with an under-pinning of conservation and discipline, implemented by a decentralised community-driven philosophy. The IIT alumni have not only the ability but also the respect and wherewithal to bring about this awareness across the country and its citizenry. It is only then that rain-water will be harvested and not wasted, rivers will gurgle pure and unfettered, forests will bloom and nature will renew her bounties to India.”



What's in a date?

Stumblebee

Climates of change. Sweeping all parts of the world. Yet, some institutions remain blissfully immune to this change. The Indian Parliament with both its Lok Sabha and Rajya Sabha for instance. Ironically, these “August” houses have sessions named after seasons. The monsoon session is devoted to members debating how a bad monsoon should translate into loan waivers for farmers. The winter session is when MPs meet to raise temperatures with their hot air talk. Then there’s a budget session that tries to control investment climate in the country. Mercifully, there is no summer session. MPs need to escape a boiling, power-cut-prone Dilli summer and seek refuge in sponsored foreign jaunts. So what is constant about this hallowed institution across seasons? The fact that its members, MPs as we call them, continue to be delightful liars. They start their parliamentary career with a lie when they say that they have not spent more than the prescribed election expense ceiling. At 25 lakhs, they cannot print voter slips for every voter, leave alone pay for loudspeakers, dirty paint, jeeps, khadi-wear, and garlands. Then they lie about their financial statements. About criminal records. About election promises. To his chagrin, Stumblebee discovered that MPs also lie about their dates of birth. Shocking? Read on to learn more in this edition of Totally Useless Trivia (TUT).....

Stumblebee

Raghuraj Pratap Singh aka Raja Bhaiyya is the newly appointed minister for prisons in UP. Appointing a regular jailbird in charge of prisons is as ironical as appointing a school dropout as a minister of state for education, but that is precisely what the UP Government has done. But that is a subject matter of another TUT. Let us inspect another aspect of Raja Bhaiyya’s notoriety. In his election affidavit, he declared his age to be 38 years. Nothing wrong with that except for the fact that by this count, he would have been 20 years old in 1993 when he was first elected to the UP assembly and hence, underage and ineligible to contest. Would it not have been better for him to add 18 years to his then declared age of 26 and announce himself as a 44 year old now? Perhaps not. One cannot burden UP dons who spend time in jails to add correctly and keep track of their lies to make them sound consistent.

For sure, this may be a one-off case, but can one deny the fact that the dates of birth declared by MPs defy the rules of probability and logic? In a 544 member Lok Sabha, with 365 dates of birth to choose from, there could be a nice uniform spread of 1.49 people sharing every single date of birth from Jan 1 to Dec 31. They do things in half measures, but they are whole themselves and so some dates could be the birthday of 1 MP and some for 2 MPs. Probabilistically, some

dates could belong to even 3 or 4 MPs and beyond that, it would be quite improbable. Statistics show that there are 70,000 babies born in India every single day, including holidays and Bharat Bandhs. So to find 104 days that do not celebrate an MP's birthday is strange.

This begs the question-why should anyone lie about his date of birth? A look at the numbers may provide the answer. According to declarations made by members of the

Let's now invent a term called Birthday Oversubscription Factor or BOF in short. Number of actual occurrences divided by probabilistic occurrence is BOF. For example, Jan 1 has 14 takers as against the theoretical 1.49. Hence, Jan 1 has been oversubscribed by 9.4 times.



current Lok Sabha, 17 are born on 1st June, 14 are born on 1st January (and they call it a happy new year), 7 are born on 1st July and 6 are born on 1st December. How can so many people be born on the 1st of any month? Probabilistically, about 1 in 30 could be born on the 1st and that translates to about 18 MPs. But we have 62 MPs claiming the honour - a good three and a half times more than the probable scenario.

Clearly, this is a case of illiteracy and ignorance. About not recording birth dates and not caring to remember them. Adopting 1st because it is easier to remember. And these guys always want to be the first in everything, right? To the extent that 14 of them want to be the harbingers of every new year. Let's now invent a term called Birthday Oversubscription Factor or BOF in short. Number of

actual occurrences divided by probabilistic occurrence is BOF. For example, Jan 1 has 14 takers as against the theoretical 1.49. Hence, Jan 1 has been oversubscribed by 9.4 times.

But one wonders why 1st June is oversubscribed by even more. By 11.41 times to be precise. This appears to be a case of a "school joining" birth date forgery and to be fair, this is a rampant practice in India and we cannot single out MPs for this. Every parent believes his/her child to be bright enough to join the senior class and they advance the birthday to before June 15th in order to secure a berth in a higher class. Little wonder then that BOF of June as a whole is 1.52. June has 69 birthdays against a theoretical quota of 45.33. And from these 69, 49 claim to be born on or before 15th June, thus strengthening our suspicion that these are school joining birthdays. Maybe, we have something to smile about here. Some MPs did go to school. There's a well known case of a speaker of an assembly who had thrown a huge birthday bash. When journo's confronted him and asked him why he was celebrating his birthday some 2 months after he was wished in the assembly, he had shot back. "Oh! The assembly mention was for my school birthday. My actual birthday is today." Lying has become legit, official and a cause to celebrate twice. Not surprisingly, June's inflated BOF has been at the expense of August, September, October and November. In fact, August posts the least number of birthdays, just 30 despite the fact that we are talking about an "august house". And yes, August is an undersubscribed month with 66.67% capacity utilisation. So much for the astrologers who would have us believe that people born under the zodiac sign of Leo are natural leaders.

Is there any state bias for a particular month? Surprisingly, yes! And for no apparent reason. Bihar oversubscribes January with

11 of its 39 MPs claiming to be born in January; BOF of 3.4. And so do Jharkhand, UP, and West Bengal. They oversubscribe January by BOFs of 5.14, 1.69, and 2.57 respectively. Less surprising is the fact that most other states oversubscribe June. Uncanny is the fact that BOFs are so similar. Consider AP at 2.57, Gujarat at 2.77, Karnataka at 2.57, Maharashtra at 2.00, MP at 2.90 and Tamil Nadu at 2.15. The average of all birthdays (including birth year) of 544 Lok Sabha MPs

Lying has become legit, official and a cause to celebrate twice.



is 16-Sep-1955, thus establishing an MPs average age to be 57 years. Considering that the cut-off age for being a member of Young MPs club is 60, the present Lok Sabha can be counted as a “young” one. Isn’t that, yet another lie?

What about the house of “elders” viz. the Rajya Sabha? From the data available for 226 Rajya Sabha MPs, we find the average age to be slightly less than 62 years. These are elders, no doubt but strangely - and not surprisingly - their propensity to lie matches their younger counterparts. Again, the most oversubscribed dates are 1st January, 1st July, 1st June and 1st October. BOFs are 8.07, 8.07, 6.46, and 6.46 respectively. People claiming to be born on the 1st of any month is 3.36 times more than the probable. Compare that with the 3.47 factor of the Lok Sabha. January and June continue to be the most oversubscribed months. The circus continues. Lies, damn lies, damner lies and damnest lies.

There are reasons to believe that previous Lok Sabhas had more MPs claiming to be born on Jan-1. And there was a generous sprinkling of Aug-15, Jan-26, and Oct-2 thrown in to make us gape in disbelief. The

improvement suggests that people have now become intelligent at lying. Seriously, is this trivia totally useless? Can we put it to some use? Maybe, we could ask for a new law that assigns 1st April as a birthday for every MP. And we could wish all on one single day by singing. The tune could remember the same one that we use for “happy birthday to you”. But the words would change to:

“You can fool some of the people all of the time, and all of the people some of the time, but you can not fool all of the people all of the time.”



Hatti o Hatti

Satish Hattiangadi

Satish Hattiangadi (B.Tech./ 1971 / Chemical Engg) and Leja Mary Alex (B.Tech./ 1971 / Chemical Engg) perhaps have the elusive honour of being the first known campus romance from the 'sixties. After so many years of happy matrimony Satish shares their story in his own inimitable style. This is a story for the archives. Leja is one of our own as she has been a member of the Board of Directors at IITBAA. Satish is independent computer software professional. Satish and Leja live in Mumbai.

Noseybee

A Short love story!

A story has an end, and we are yet to reach it!

But an incident can be related...

We were fortunate to have a home where water was never in short supply. So it was a serious problem when, one Sunday, the underground and overhead tanks were being cleaned, and we had no water in the house.

Water or no water, it did not stop Leja from her weekly cleaning-up program. And I, as usual, picked up a crossword to solve and went to one corner and sat down. (Those were the days before SUDOKU hit town!)

Leja peeped at me out of the corner of her eye, and I could feel the ambient temperature rise.

But I soon forgot the situation, and was contemplating the 15-letter word at 13 down while relishing a cigarette, and I saw her peep again, with the ambient temperature going up another notch.

But that fifteen-letter word was a tough one, and needed a second cigarette to do justice to it.

That is when I saw Leja's third peep, and the temperature had now reached boiling point!

"Hay, Hatti, fetch me some water!" ('Hatti' was the term used when the situation was in vapour phase!)

"In what shall I fetch it, dear Leja, dear Leja, in what?"

"In a bucket, dear Hatti, dear Hatti, In a bucket, dear Hatti, dear Hatti, in a bucket!"

And so I got up and went to the bathroom and picked up a bucket and examined it...

"But there is a hole in the bucket, dear Leja, dear Leja, there is a hole in the bucket, dear Leja, a hole!"

"Then fill it, dear Hatti, dear Hatti, fill it, dear Hatti, FILL IT!"

"With what shall I fill it, dear Leja, dear Leja, with what shall I fill it, dear Leja, dear Leja, with what?"

"With a straw, dear Hatti, dear Hatti,

with a straw, dear Hatti, dear Hatti, with a STRAW!"

So yours truly went out in the garden and brought a straw that was lying around.

"But the straw is too long, dear Leja, dear Leja, the straw is too long, dear Leja, too long!"

"Then cut it, dear Hatti, dear Hatti, cut it, dear Hatti, dear Hatti, CUT IT!"

"With what shall I cut it, dear Leja, dear Leja, with what shall I cut it, dear Leja, with what?"

"With an axe, dear Hatti, dear Hatti, with an Axe, dear Hatti, dear Hatti, WITH AN AXE!"

And so I amble to the tool box and pick up the axe. I feel along the edge, and then park myself in front of the mirror and see if I can use the axe to shave myself, and when I can't, I am convinced.

"But the axe is too dull, dear Leja, dear Leja, the axe is too dull, dear Leja, too dull!"

"Then sharpen it, dear Hatti, dear Hatti, Sharpen it, dear Hatti, dear Hatti, SHARPEN IT!"

"On what shall I sharpen it, dear Leja, dear Leja, on what shall I sharpen it, dear Leja, on what?"

"On a stone, dear Hatti, dear Hatti, on a stone, dear Hatti, dear Hatti, ON A STONE!"

Back to the tool box to pick up the whetstone, then on I went to the work bench to put the stone on it, and I picked up the axe to sharpen it.

"But the stone is too dry, dear Leja, dear Leja, the stone is too dry, dear Leja, too dry."

"The wet it, dear Hatti, dear Hatti, wet it,

dear Hatti, dear Hatti, WET IT!"

"With what shall I wet it, dear Leja, dear Leja, with what shall I wet it, dear Leja, with what?"

"With water, dear Hatti, dear Hatti, with water, dear Hatti, WITH WATER!"

"But there is no water, dear Leja, dear Leja, there is no water, dear Leja, no water."

"Then fetch it, dear Hatti, dear Hatti, FETCH IT!"

"In what shall I fetch it, dear Leja, dear Leja, in what?"

"In a bucket, dear Hatti, dear Hatti, IN A BUCKET!"

"But there is a hole in the bucket, dear Leja, dear Leja, there is a hole in the bucket, dear Leja, a hole!"

By then, I had got my word for the crossword puzzle: 'PROCRASTINATION'

Yes, as you may have guessed, this bares an uncanny resemblance to a certain Calypso tune hummed by Harry Belafonte. But then, all love stories are alike, aren't they?

Global Mega Trends

Rajeev M Pandia

From time to time, the world witnesses certain definite trends and directions, which shape business and individual activities during the following few years.

These trends arise from a variety of forces and triggers.

A few owe their existence to a single event, such as 9/11, which completely changed the security industry the world over, leading to enormous amounts being spent on security equipment and manpower, as also billions of passenger man-hours being spent in complying with newer security regulations. Another example could be the recent Tsunami in Japan and the impact on the Fukushima nuclear power plant, which could redefine the approach towards nuclear power safety in future.

However, most mega trends evolve over a period, as the impact of certain developments gets assessed and comprehended. An example of this is the Greenhouse gas consciousness during the last two decades, as the world understood the slow but steady influence on the ozone layer of the burning of fossil fuels.

Each mega trend does not apply to all the regions of the world to the same extent. Some start from the developed world and then move on to the developing countries.

It is necessary for professionals and managers to understand the mega trends clearly, as

they influence their careers and efficacy in the business environment.

Which are the current mega trends? The ones discussed here are not exhaustive but are illustrative of the shape of things to come.

Scarcity of fossil fuels: As is well known, the global reserves of crude oil, natural gas and even coal are limited. In addition, their utilisation leads to emission of greenhouse gases, adversely affecting the Carbon footprint. Hence one would see increasing emphasis on conservation of energy and efficient utilisation (such as lamps, motors, transmission systems) on the one hand and alternate sources (such solar, wind, hydro, nuclear, shale gas) on the other. The popularity of hybrid cars in the West is just one example of this trend.

Shortage of water: With increasing global population and greater use of land for non-agricultural purposes, shortage of water is being forecast with increasing alarm. Desalination systems at affordable rates, rain water harvesting, crop cultivation with limited water and with reduced evaporation rates, recycling and conservation, and treatment of waste water are offshoots of this trend which already receive great emphasis.

Green chemistry: With the realisation of the shortage of crude oil comes the consciousness of the damage that some of the synthetic

materials could cause to the ecological systems. Plastic bags which are not biodegradable and which block the passage of storm water in drains, synthetic detergents which have genetic dangers, polycarbonate baby bottles which have carcinogenic materials – these are some examples of the shift from synthetic to green or natural materials. People in the West are willing to pay a premium for products with a green label, just as they do for organic vegetables grown

It is increasingly clear that the future growth of economies would be in the East and hence the global pattern of new investments is already shifting rapidly from the West to the East.



without synthetic fertilisers and pesticides.

Healthy living and quality healthcare: The consciousness about health and fitness is spreading across the world and is reflected in the avoidance of junk food and drinks, fast growth of bottled water, healthy foods, vitamins and nutraceuticals, exercise regimes and books/periodicals dealing with health. Concurrently, people desire quality healthcare even at a high price and are often willing to travel far to get it. Industries based on healthy living and healthcare have thus recorded enviable growth rates.

Urbanisation: Despite conscious efforts, governments have been unable to control migration from rural to urban areas, leading to mega-urban clusters. These will have their own requirements and challenges of infrastructure, traffic management, housing, parking, construction, town planning, security, mass transit, and connectivity.

Shift of the economic centre of gravity: It is increasingly clear that the future growth of economies would be in the East and hence the global pattern of new investments is already shifting rapidly from the West to the East. The global recession of 2008 has also shown how deeply it affected and continues to affect the USA and European Union vis-à-vis India and China. Currently BRICs nations account for 45-50% of global population but only 25% of the GDP. This imbalance is certain to shift as China and India continue to grow at close to double digit rates year after year, with parts of Africa not very far behind.

Democracy: The fall of the iron curtain, break up of the USSR, recent events in Egypt and the Middle East – these are pointers to shifting political trends with authoritarian regimes giving way to those more inclined towards a democratic order.

Globalisation: While the last few years have seen substantial movement towards globalisation, with capital and labour moving to the most competitive countries/regions and services getting outsourced, with further developments in Information Technology/ Communications and decline in trade barriers, this trend is expected to continue. Not only countries but even provinces within countries would compete for a share of new investment and would create environments (through better governance, incentives or efficiencies) to attract new capital which could create jobs for their citizens and improve their living standards. The world will continue to get flat.

Leisure and luxury: As the percapita income grows in BRICs countries, encompassing a large part of the global population, so do aspiration levels. The average middle class consumers in these countries are now able to aspire for vacations, cars, decent residential

accommodations, luxury goods and appliances, thus changing the landscape for travel, FMCG, housing, automotive and appliance sectors. That tires recorded a growth rate exceeding 20% in India in a year when the world was reeling under unprecedented recession is just one example of this trend.

Technology: It took years of gramophone records before cassettes made their way and it took just over three decades for cassettes to disappear, being replaced by CDs. Now

It is now established that companies which show high standards of governance are distinctly favoured by capital markets, over those that do not.



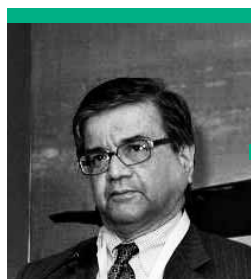
even CDs face obsolescence, being replaced by more consumer friendly and compact storage media/options. This is an example of how rapidly certain technologies evolve and make the preceding ones obsolete. Countries which show creativity in these areas will have a distinct advantage over others.

Glass ceilings: A few decades ago it was almost inconceivable that a person in his 30s or a lady could be the CEO of a large company, especially if he or she was not from the shareholder family. This glass ceiling started being broken in the recent past and the current indications clearly show that this trend would gather momentum.

Shareholder activism: A few glaring examples of collapse of corporate governance in the developed and developing countries and many more of unjustifiably high salaries to the top managements of companies, started the trend of shareholder and Government activism and controls. The failure of banks in 2009 further added to this trend and so did ownership of large blocks of shares by

Private Equity and Venture Capital funds, demanding performance and high standards of governance. It is now established that companies which show high standards of governance are distinctly favoured by capital markets, over those that do not.

It is never easy to predict the future and the above list is certainly not an attempt to do so. Its purpose is to illustrate the importance of emerging trends, emphasise the need to spot them, follow them and to avail of opportunities that arise from these mega trends.



Rajeev Pandia

B. Tech Chemical Engineering, 1971 is a distinguished alumnus of IIT

Bombay. He has been the Managing Director of Herdillia Chemicals Limited and in his long career spanning 39 years, he has been associated with strategic planning, project evaluation and management, technology transfer, international marketing, Government policies and general management. As a Board member and Consultant, Mr Pandia now advises several Indian and international companies in the areas of Strategy, Project execution and Operational Excellence.



Jeeves, Robot?

Beheruz N. Sethna

Beheruz N Sethna started his tryst with acclaim when his name was painted in yellow on a wooden marquee in H4 lounge in the "Scroll of Honour" list by virtue of his accomplishments as a student during his stay from 1966-71 for his B. Tech. in EE. Subsequently, after a long journey which took him through an MBA from IIM Ahmedabad, an M.Phil. and Ph.D. from Columbia University in New York, and participation in post-doctoral programs at Harvard and Indiana, Dr. Beheruz Sethna is a Distinguished alum from both IITB and IIMA and is currently Professor of Business and President of the University of West Georgia (UWG). The University has undergone considerable growth during Dr. Sethna's nearly 19 year tenure. When he was appointed President of the then-West Georgia College in 1994, its offices still had rotary phones and Dr. Sethna had to boot up each computer for his class with a floppy disk. Now, UWG is a doctoral degree granting, SACS Level VI university with nearly 12,000 students who "Go West" for the opportunities UWG provides.

Among the many firsts he is credited with, Beheruz became the first known person of Indian origin ever to become president of a university anywhere in America. He also obtained the University's first endowed Chair. He has served twice as Interim Executive/Senior Vice Chancellor for the University System of Georgia with responsibility for

Academic Affairs, Student Affairs, Instructional/Information Technology and Planning for 35 research and comprehensive universities and access institutions, 260,000 students and 10,000 faculty.

Beheruz has published a book and 69 papers (30 since becoming UWG President), several case studies, and obtained externally funded research from the U.S. Department of Energy, IBM, AT&T and others. Amongst his many awards, he has been named among the 100 most influential Georgians.

In this piece penned by him, Beheruz displays his love for Jeeves and shows his humorous side not generally associated with hard core academicians like him.

Lazybee

Do you know Bertie Wooster? Chap from the Drones Club? Well, if you do, you know of his man, Jeeves. Jeeves is Bertie's butler, the quintessential English butler! But don't let Jeeves catch you using the "b" word – Jeeves calls himself this gentleman's personal gentleman.

I've known Bertie and Jeeves for a while, and always knew that Jeeves was a very smart man who pulled Bertie out of many a messy situation in his time. If you know Bertie, you know that Jeeves is brilliant and is used by all Bertie's friends to get them out of messes. If you don't know Jeeves, look him up in the

stuff that his chronicler, P. G. Wodehouse, has written.

Bertie says that Jeeves eats a lot of fish and that's what makes him so smart. But, I say, has anyone actually seen him eating fish? No! In fact, has anyone seen him eat at all? No! I don't think it's the fish that makes him so smart.

For all these years, I believed the fish story. Now, I think it's just plain fishy.

Let me tell you a few things about Jeeves, in case you have never met the man. Has Bertie ever told you about his first meeting with Jeeves?

Bertie was lying on the sofa trying to recover from the previous evening's revels, when the bell rang, and Bertie "crawled off the sofa and opened the door." Here's a quote from Bertie's account (in *Jeeves Takes Charge*):

"A kind of darkish sort of respectful Johnnie stood without.

'I was sent by the agency, sir' he said. 'I was given to understand that you required a valet.'

I'd have preferred an undertaker; but I told him to stagger in, and he floated noiselessly through the doorway like a healing zephyr. That impressed me from the start. Meadows (Bertie's previous man, you know) had had flat feet and used to clump. This fellow didn't seem to have any feet at all. He just streamed in.

Within the first few minutes, Jeeves had diagnosed Bertie's excesses from the previous evening, and fixed him a "preparation of his own invention" that immediately cured him of his hangover.

Suspicious, extremely suspicious – how did he know that Bertie needed help, and how was he able to cure him immediately? And,

did you notice how he moved noiselessly?

Bertie hired him on the spot, and, within a few days, Jeeves' actions had led to Lady Florence Craye terminating her engagement to Bertie. Bertie hadn't realized it at the time, but, as Jeeves later informed him, he and "Lady Florence were quite unsuitably matched. Her ladyship is of a highly determined and arbitrary temperament, quite opposed to your own." Bertie, not knowing Jeeves superior intellectual abilities, was furious, and fired him immediately. However, after a night to think about it, he realized that Jeeves had saved him from himself and from Florence Craye. Needless to say, Jeeves was re-engaged and has been with Bertie ever since. If you hadn't heard Bertie tell this story, hold on for a bit; I'll describe it in a little more detail in a few minutes.

Since that first time, Jeeves has saved Bertie from numerous romantic entanglements (some of which Bertie realized were awful ones, and some that he did not until he was well out of it), from the craziness of various loopy aunts, and from a less developed fashion sense than Jeeves deems appropriate!

I have never thought that there was anything more to all this than meets the eye, and Bertie is so "mentally negligible" that he wouldn't ever suspect if anything were amiss, but now I don't know – I just don't know.

Could there be more to Jeeves than we realize?

Ever since we left Oxford, neither Bertie nor I have ever having read anything beyond the Sunday comics, so it is not surprising that we had never heard of this Asimov chap and his Three Laws of Robotics (I understand that there's a fourth one too, but we won't get into that, because it doesn't apply to most robots, and I bet he called it the zeroth law to confuse everyone anyway).



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But, last weekend, I was stuck in this boring place in Shropshire, it rained all day, and there was no one else there who was below the age of a hundred and three, so I decided to read a book, *I, Robot*, that a previous guest had left in my room. It was by this Asimov bloke, and talked of the Three Laws of Robotics.

Let me tell you what they are:

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

It says it's from the Handbook of Robotics, 56th Edition, 2058 A.D., but I personally think Asimov got the dates wrong, because that's still a few years away.

Now that I have read the Three Laws of Robotics, I wonder about Jeeves. I don't want to say this too loudly, but I can tell you ... I think Jeeves is a Robot! You sneer – but let me prove it to you.

Let's take the First Law first. Certainly, Jeeves has never hurt anyone, but let's look at the second part of it carefully: "A robot may not, ... through inaction, allow a human being to come to harm." Now, doesn't that explain exactly what he does when he gets Bertie out of engagements and entanglements? Sometimes this is unbeknownst to Bertie, and often even contrary to what Bertie thinks is best -- but we know that Jeeves knows best, of course!

In *Jeeves Takes Charge*, Bertie described how his fiancée, Lady Florence, wanted him to

destroy his uncle's memoirs so that he would not publish them and cause a scandal.

Much against his will, Bertie was forced by Florence to steal the memoirs. After he almost got caught hiding them in his room, he suggested to Jeeves that he might "freeze on to it" and then "chuck it away somewhere – what?" – this was not a direct order; we'll talk about the Second Law in a bit.

However, Jeeves mailed the manuscript to the publisher! Florence was so upset at Bertie,

Now that I have read the Three Laws of Robotics, I wonder about Jeeves. I don't want to say this too loudly, but I can tell you ... I think Jeeves is a Robot! You sneer – but let me prove it to you.



because she thought he had chickened out and not stolen the memoirs in the first place. She broke off their engagement immediately.

When Bertie confronted Jeeves about the manuscript, he readily admitted that he had mailed it to the publisher (a robot does not usually lie!). He said that he did so because it would not have been a suitable match.

Now, using Asimov's Laws, we know that Jeeves mailed the manuscript to the publisher because he believed that it was in the interest of the human beings involved (Bertie and Florence) since the match was not suitable. Now, we who know Bertie well, know that Jeeves was correct. Florence was making Bertie read a book on Types of Ethical Theory, that was taxing Bertie to the extreme – it wanted something like this: "Of the two antithetic terms in the Greek philosophy one only was real and self-subsisting; ... having

no predicates that held true for two moments together; in short, redeemed from negation only by including indwelling realities appearing through.” Now, how could any self-respecting robot, through inaction, allow Bertie to be tied to a female who makes him read such bilge? And, Nietzsche to follow! Really, Florence wouldn’t have been happy either. So, both the human beings were saved from serious marital harm by Jeeves’ actions.

Now, for the second Law: “A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.” Jeeves has his own inimitable style of handling the Second Law. He will suggest that a particular item of clothing is not appropriate, then, when Bertie does not listen, he may even register a protest, but when he receives a direct order, he will comply. If Bertie hasn’t told you about Jeeves and The Chump Cyril, let me do so. Bertie tells of a time that Jeeves and he could not see eye-to-eye about a pair of purple socks that he (Bertie; as if Jeeves would ever wear such awful things!) wanted to wear. Bertie talks of “a slight estrangement, a touch of coldness, a bit of a row in other words, between us at the moment because of some rather priceless purple socks which I was wearing against his wishes ...”

“He started to put out my things, and there was an awkward sort of silence.

‘Not those socks, Jeeves.’ I said, gulping a bit but having a dash at the careless, off-hand sort of tone. ‘Give me the purple ones.’

‘I beg your pardon, sir?’ said Jeeves, coldly.

‘Those jolly purple ones.’

‘Very good, sir.’

He lugged them out of the drawer as if he were a vegetarian fishing a caterpillar out of his salad.”

So, Jeeves does obey direct orders. However, he, in his superior wisdom, knew that purple socks were not appropriate and would do Bertie great harm in the sartorial world, so he figured out a way to help Bertie in spite of himself. Jeeves helped save Bertie from the anger of his terrible aunt Agatha (who eats nails), and then, capitalizing on the gratitude he knew that Bertie would feel, Jeeves gave away the socks to the elevator attendant!

Bertie, of course, knew nothing of this until

One of the rummy things about Jeeves is that, unless you watch him like a hawk you very seldom see him come into a room. Very robotic indeed.



the elevator attendant thanked him for his gift of the purple socks! So, at the end of the day, thanks to Jeeves’ efforts, Cyril’s career had been rescued, Bertie’s aunt Agatha was pleased, and Bertie had been saved from a bad fashion choice. All the human beings – if Aunt Agatha can be loosely classified as such – were better off thanks to Jeeves’ efforts (in the words of the First Law, they did not come to harm). So, while Jeeves obeyed the direct order by handing Bertie the socks, he still found a way to get out of the fashion abyss, because failure to do so would have caused his master grievous sartorial harm! Sneaky, really sneaky – but consistent with the first two Laws of Robotics.

Finally, to the Third Law: “A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.” In this case, since there is nothing in the Wodehousian Chronicles to indicate that there was any imminent danger to the existence of Jeeves, we cannot prove or disprove its applicability in the strictest sense

of the way the Law is written. However, if we expand the connotation of the Third Law to include protection (not just of the existence, but) of the well-being and satisfaction of the robot as well, then we may have something in the Wodehousian Chronicles to help us.

Though Jeeves is not reticent about expressing an opinion on Bertie's clothes, hats, spats, and even moustaches, very rarely does Jeeves express a preference for himself. There are a few exceptions, though, in cases in which the First or Second Laws are not the issue. For example, in *Jeeves and the Greasy Bird*, Jeeves wanted to go to Florida after Christmas (but Bertie wanted to be in London for the Drones Club Darts Tournament). In Bertie's words, "He had been trying to get me to go to Florida after Christmas, handing out a lot of talk about how pleasant it would be for my many American friends, most of whom make a bee line for Hobe Sounds in the winter months, to have me with them again, but I recognized this, though specious, as merely the old oil. I knew what was the thought behind his words. He likes the fishing in Florida and yearns some day to catch a tarpon."

The evidence seems to indicate that Jeeves looked out for his preferences in this case. Now, it's important to note that, while pursuing his needs (the Third Law), he followed the First and Second Laws to the letter. He extricated Bertie from a possible breach of promise suit (unjustified, I hasten to add) threatened by the "greasy bird", helped Aunt Dahlia (Bertie's good aunt, not the one who eats nails) out a jam as to who to have as Santa Claus for her Christmas Party, and helped with Sir Roderick Glosslop's romance. But, in the end, he helped himself too – out of London and to Florida!

In the end, Bertie gave in, "Jeeves ... you

were saying something not long ago about going to Florida after Christmas." ... "Then will you be booking the tickets." ... "Heaven help the tarpon that tries to pit its feeble cunning against you, Jeeves. Its efforts will be bootless."

So, Jeeves was able to protect his own well-being and satisfaction (an expanded connotation of the Third Law) while preserving his commitment to the First and Second Laws.

So, now that we know that Jeeves follows the Three Laws, my suspicion gets stronger that Jeeves is a robot. It is true that, just because robots have to follow the Three Laws, that's not the same thing as saying that anything that follows the Three Laws is a robot. I know that. There's a logical fallacy that addresses things like that, but I'd have to ask Jeeves for the name of it, and I don't want him to see this manuscript.

But, there's more ...

Bertie describes Jeeves as having a face that rarely shows emotion; an occasional flicker of an eyebrow being the exception – in *Scoring Off Jeeves*, he says that Jeeves "cloaks his emotions, if you know what I mean ... wears the mask and what not." Hmm ... suspiciously like that of a robot. In *Joy in the Morning*, he describes Jeeves registering "mild surprise – one eyebrow flickered a little and the tip of the nose moved slightly." In *The Artistic Career of Corky*, Bertie points out that Jeeves "had a kind of paternal muscular spasm about the mouth, which is the nearest he gets to smiling." So you see, he shows no human emotions at all – how could that be unless he is a robot?

Bertie refers to Jeeves as one who knows practically everything ("Good Lord, Jeeves, is there anything you do not know?" says Bertie, and Jeeves responds, "I could not say, sir."). In *Jeeves and the Hard-Boiled Egg*,



Bertie say, “Jeeves knows everything.” Not only does he accurately quote Shakespeare, Kipling, and a variety of other authors, but he also knows all the gossip in England! Tell me how could he do that unless he has one of those positronic brains that Asimov talks about.

Note also that when Bertie asks, “Good Lord, Jeeves, is there anything you do not know?” and Jeeves responds, “I could not say, sir,” he does not say “No!” He says, “I could not say” because a robot does not lie. Ah-ha!

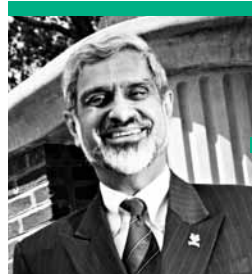
And here’s another thing: As Bertie says in *Joy in the Morning*, “Have you ever noticed how his head sticks out in the back” ... “That’s where his brain is; packed away behind the ears.” In *Jeeves and the Hard-Boiled Egg*, Mr. Bickerseth, Bicky to friends, notices the same thing. You know that he needs place to store that large positronic brain!

Finally, look at the way he moves. In *The Artistic Career of Corky*, Bertie talks of ringing for Jeeves, and he suddenly appears. “‘Sir?’ said Jeeves, kind of manifesting himself. One of the rummy things about Jeeves is that, unless you watch him like a hawk you very seldom see him come into a room.” Very robotic indeed.

So, to summarize: Jeeves follows the Three Laws of Robotics, has an impassive emotionless face, moves noiselessly, shows no record of ever having eaten fish or anything else, knows and remembers practically everything (consistent with an excellent data storage and retrieval facility in a positronic brain), has a head that sticks out in the back, and has tremendous intellectual power. One wonders how long this sort of thing has been going one, unsuspected by all!

Jeeves, Robot?

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Close Encounters of the Chinese Kind

Akshay Mishra

I put my hand in my pocket and realised that my pocket had been picked. Considering that I had to cross over to mainland China from Hong Kong as soon as possible, this was the third event which could be termed "unfortunate" in a matter of two hours. Also, the fact that this was my first trip to a foreign land made me think that it was all a part of some grand design.

It all began when I was asked to rush to Beijing immediately to help a customer. The short notice meant I did not have time to get a visa, so after discussions with my colleague and clients I decided that I should apply for a Chinese visa at the Shenzhen border when in HK. I left for Hong Kong the same night while a driver and car was arranged for me at HK airport, a room was booked for me in Shenzhen and I was booked for a flight to Beijing the next day of my arrival.

After an uneventful flight, once I reached Hong Kong, the aforementioned events unfolded with clockwork precision. Immediately upon arrival I was politely whisked away by custom officials. Upon reaching the interrogation room, I was told by the officials in halting English that they have caught a Pakistani and need help on translation. I had nothing pressing at hand, moreover, the request was more like an earnest order and I obliged. The Pakistani was caught carrying a large quantity of drugs and it was a grave

The rifles were not AK-47 but were gas operated, most likely a Chinese replica cocked in full auto mode, fully capable of puncturing me at a rate of 100 bullets/ minute each.



situation. I still remember his eyes. I was told he might be executed and I shuddered. After about 20 minutes, I requested to be excused since I could not tolerate it. I was allowed to leave.

I reached my highly anxious driver who had almost given up on me and was about to leave assuming I'd not turn up. Soon we were speeding towards Shenzhen and everything seemed settled now. I finished my exit formalities at the Hong Kong border checkpoint and dozed off, trying to forget the Pakistani. After some time when my driver asked for my passport, I gave it to him, turned and slept again. In a moment, I was pulled out of my car and 12 Chinese Border Policemen had their guns on me at a distance which is known as Point Blank. I cannot put in words the feeling I went through but my mouth went dry and my eyes almost popped out. And to say, I was pitying the Pakistani only a couple of hours ago.

I put my hands up and said "English Please".

My voice came out as a squeak and I barely heard myself. I felt that this was surely my end and what would make it more tragic was the fact that I had no idea what was happening. The Border Police promptly opened up my luggage and its contents were strewn everywhere in the car and on the road. I did not care and only kept repeating "English Please" over and over again. What had happened was that the driver, assuming that I had a Chinese visa, had

I ran, picked my luggage content spread all over and scooted and we were at the border at breakneck speed - the driver was trembling and I could not feel anything. I was detained for 45 minutes and it had seemed like a lifetime.



taken me into Chinese territory, leaving the Shenzhen checkpoint some 15 kms behind, and now here I was, staring at the wrong end of numerous Chinese rifles. I was within China without a visa !! The rifles were not AK-47 but were gas operated, most likely a Chinese replica cocked in full auto mode, fully capable of puncturing me at a rate of 100 bullets/minute each. I almost shouted, "You pigs, get me somebody who can speak English, I am an engineer out here to help a Chinese customer". I am not sure if it was the word "pigs" or "engineer" or something else, but the commander's eyes softened and he powered up his wireless. After a brief conversation he commanded that I be taken to an interrogation room. This time, ironically enough, I was the victim needing a translator. My driver who seemed equally scared refused to translate and stayed put in the car.

Finally some high ranking Chinese military

official came in and I spoke with him. He saw my passport, saw my tickets, spoke to my driver and then told me that what I had done could be punished severely but he will make an exception and allow me to return to the border where I can get my visa. But to ensure I am out of China immediately, an escort car will accompany us. I breathed and realised my bladders would burst but never gathered the courage to ask for the wash room. I ran, picked my luggage content spread all over and scooted and we were at the border at breakneck speed - the driver was trembling and I could not feel anything. I was detained for 45 minutes and it had seemed like a lifetime.

I arrived at the border checkpoint at 5:03 PM and was told it closes at 5 pm so I should come again next day. I inquired if visa is issued to Indians, and was stonewalled. I asked my driver to take me to some hotel - he said he will drop me at some metro station and I should fend for myself. And all this will cost me US\$100. He had made his judgement - I was a bad man and should be avoided. I did not say anything and he dropped me at some metro station. I stepped out, went to the loo and then went to buy some sandwich, I put my hand in my pocket and realised my pocket had been picked ...

I turned back and ran like mad towards the only man I knew there - my driver. He was sitting in his car and maybe planning to turn back. I almost begged him, with the crowd staring at us, to take me to some hotel and told him that my wallet had been picked. He looked in his car, muttering there are no pickpockets in Hong Kong, found my wallet, and drove me to one of the best hotels in Kowloon.

I had survived.

Inquiring at the hotel travel desk I was



informed that China does not issue travel visas and I should return back to India. The next day I with my driver reached the HK border checkpost where the official was staring at me, for what was I doing entering, leaving, re-entering and now again leaving HK within a day. When I recounted my story, he said Indians are welcome as many times as they want from whichever end of HK and I smiled - I knew what it meant. At the Shenzhen checkpost, visa was a mere formality and about 15 kms away at the border patrol station, the same border patrolmen from the day before, looked at my visa, spoke to each other, laughed and called me for some tea. I politely refused and sped away for the airport.



Akshay Mishra

Akshay Mishra did his B.E from MSU Baroda in 2000 and M.Tech in EE in 2002. He is now working on his startup DSPWorks working in embedded signal processing and efficient low end sensor/ mesh networks. He lives in Mumbai.

“Genius met here”

In conversation with Pandit Dr Arun Dravid

Humblebee



Approximately 46 years ago, a young chemical engineering student from IIT Bombay would take the last local to Vikhroli after his weekly classes with Vidushi Kishori Amonkar and then make his lonely way up the winding road walking all the way to his hostel at IIT Bombay.

Let me take you away for a moment from the campus that you see today, where students prefer a tum-tum or an auto to ferry them to and fro from their classes to the hostel. To cast you back momentarily to a time when the chaos that exists outside the gate was but a distant dream into the future. What existed then was a quiet desolate world inhabited by the distant cry of jackals howling in the night. But the long walk all the way from Vikhroli station (there was no Kanjurmarg then) to the fourth hostel room, after the last Institute bus of the day had already gone, did provide quiet solitude to hum and memorise the lesson that had just been learnt. A pack of biscuits stashed away in the hostel room made up for the missed dinner.

The young man of our story had to take special permission to leave the campus from Brigadier Bose, the director. He skipped dinner, other standard recreational pursuits of a young man of his age, and routinely hiked that lonely road all for the sake of a music lesson! He was obviously gifted (with Ganasaraswati Padmavibhushan Kishori

He mentions in passing, with complete casual nonchalance, that he never stood second in class and that music came very easily to him. “I did not have to struggle. It was very easy for me to do both”.



Amonkar as his guru that is a given) but also an all rounder who went on to graduate from the Institute with the President’s Gold Medal.

This is the story of a rare genius. When you write the real life story such as this it cannot be something you cobble up as an amalgamation of facts listed in a bio sheet. When you need a story, you need something with teeth. A stance. Maybe even a statement. You need great one liners. You need something of substance that will evoke awe and inspire. This story has all of them.

This is the story of Pandit (Dr) Arun Dravid, a multifaceted hyper achiever, whose middle name should have had excellence with humility inscribed in there somewhere. He has a Ph.D from M.I.T, USA, and is the erstwhile Managing Director and CEO of the Indian arm of a large global engineering company Jacobs Engineering. He has been one of the Vice Presidents of the parent company, Jacobs Engineering Group in California



(USA), and concurrently the Chairman of Jacobs Engineering India. He is also a Pandit of the musical kind and a vocalist of the Jaipur gharana with numerous concert performances to his credit, not only in India but also abroad. If that is not enough, he is a Distinguished Alumnus, an occasional visiting professor at the Institute, and a guru in his own right.

I first met Pandit Dravid during Varshastuti, the annual music concert organised by IITBAA every August on campus. Pandit Dravid was performing and I found his music much as he is himself. Sublime, understated grace with an almost ascetic purity. My story-nose had started to itch uncontrollably. Here was a man who was living the classic dualistic simpatico with his music, his high profile job - the power and the position... it is too much, right? There had to be a Greek

tragedy somehow thrown into the mix somewhere, right?

I shamelessly wangled a one-on-one appointment the day he was leaving for USA and that too with surprising ease and appeared in his house in Colaba, with my quixotic curiosity on hyper drive.

The reader will admit that there is a marked difference between writing about yourself and writing about others. In some ways, it is much easier to be humorous, mocking, or self-deprecating when writing an autobiographical work. Compare that to the moral dilemma of peeping into someone else's life in what can be only one person's interpretation.

I have tried to stay as true to his memories as possible when he shared with me his early years, his chemical engineering days at IIT Bombay, his creative musical self, his melting



Arun Dravid receiving the President's Gold Medal

pot of inspirations, the supportive environment of music at home, the values he learnt there, and the legacy he left at work...

Dr Dravid's life is a rare example of right and left brain activities working in tandem seamlessly and that too achieving excellence in both forms and fields. He seems to have been an intuitive singer with a natural talent towards music. He did not hail from a family with an ancestry of music and yet his father, a great lover of Hindustani classical music noticed in him an innate musical talent and an instinctive recognition of sur, at the very young age of 3. By 5, little Arun was teaching himself music by listening to classical music on 78 rpm gramophone records and teaching himself the harmonium.

Formal training from homemade self taught forays began when Dravid as a young 11 years old boy was put under the tutelage of Ustad Abdul Majid Khan Sahib, a direct disciple of the doyen of the Jaipur Gharana the late Alladiya Khan. Over the next 5 years, Arun would not only get a sound fundamental training in Jaipur Gayaki but also some rare ragas of the *Gharana* not commonly sung by others.

For a young boy, being interested in two different fields is never easy. There is always limited time in the day and time that always got bartered between *riyaz* and homework assignments. Yet negotiating this tricky terrain was easy enough for young Arun for whom his passionate interest in music was backed up by an innate talent and a superb IQ. He mentions in passing, with complete casual nonchalance, that he never stood second in class and that music came very easily to him. It was not arrogance but mere statement of fact when he mentions "I did not have to struggle. It was very easy for me to do both. *Riyaz* not more than 30 - 45 minutes daily for about 5 days in the week and then a single lesson of an hour with my guru". He recollected his is 60+ year old guru telling him once (he was all of 11 then) "*beta tum to blotting paper jaisa hai*, and I don't have to repeat anything to teach you". Not just that, there was time to spare to play cricket, indulge in his love for marathi plays, and more.

Hence life developed as it were on twin tracks of music and academics till he reached the gates of IIT and beyond. By then it was

clear that to Arun Dravid music was not simply a distraction or a pastime but a core element of his identity. Nor does he seem to be a person from the ranks of the tentative and unsure. He opted for Chemical Engineering at IITB over UDCT because his personal god N.R. Kamath was at IIT Bombay.

On apparent sight Dr Dravid seems to be one of the goody-two shoes students that would

A teacher's mantle sits easily on him. Along with his responsibilities in the company and his devotion to music, there was a third important dimension in his bag of careers - as a visiting professor in both UDCT and IIT Bombay



make other average joe students in class go green with envy! We all know the type, right? - the one who scores 100 out of 100 in SSC, has a bag full of scholarships and prizes even before he hit college and then goes on to be first in his class every year not just in his department but also in all branches of engineering in the entire Institute! He sang to boot!!! How unfair is that? His would probably be the class-notes that you would dearly love to beg but be too proud to ask for. Was he an insufferable swollen head? Seems not. His friend over the years, Gaurang Master, has this to share about Arun Dravid as a student in IIT.

“Arun was a very dedicated student and excelled in all subjects. It seemed like it came naturally to him. Apart from being an excellent student, he also played sports like Badminton and did well in the physical train-



Young Arun accompanying Ganasaraswati Padmavibhushan Kishori Amonkar

ing area. The second passion (to which he is currently devoted to completely) is music. He was also very helpful to me – in sharing his class notes and giving me lifts to and from home at start and end of the college terms”

After graduating, Arun Dravid followed the script and along with scores of others who left for USA he also went to MIT to pursue his Masters degree. The script continued along established lines; when his Ph D was completed, predictably with straight A's, he was elected to the prestigious Sigma-Xi Society devoted to Science and Technology, and he went on to work in the United States for another 7 years, first at Shell and then at Chevron research. This is where the script took an unexpected turn. Unlike most of his counterparts who settled down and concentrated on improving their personal fortunes in the land of plenty, Dr. Dravid decided to return to India.

Bear in mind, dear reader, that this was the era of pre-liberalisation, autarkic India, committed to the twin gods of self-sufficiency and high tariff barriers. “Brain drain” from IIT was the norm not brain gain armed with an MIT Ph.D and sound experience in product and process engineering patented and licensed in the parent companies. Dravid came back in 1976 because of an idealistic dream “I came back because I thought that my value to my country would be much higher here than being a spoke in the wheel in a big corporation in America. I could make an impact, which I did, running a medium sized engineering company”.

There is more to the story than he was letting me on in his usual reticent style. A little bit of assiduous digging from compatriots who worked in the same place led me to the fact that Dravid succeeded a British MD at a time Jacobs Engineering India, a group company of Jacobs Engineering Group, Inc was not doing so well in India. It was from these troubled waters that Arun Dravid steered the Company to a place where the company had doubled its growth and span from 1000 to over 2000 staff including over 1700 technical professionals; project sizes varying from Rs.100 million to Rs.20 billion, and presence in Fertilizers, Oil and Gas, Petrochemicals, Heavy Chemicals, Fine Chemicals, Pharmaceuticals, Organic and Specialty Chemicals, Dyestuffs, Pesticides, Food Processing, Cement, Minerals, Off-sites and Utility Systems, infrastructure, and Pollution Control.

It was a Dell Carnegie-sque meteoric success story and what his colleagues and subordinates remember about him is his forthcoming nature and his problem solving approach. Dipak Sheth fellow IITB alum who worked under him for some time remembers “unlike other toppers and Gold medalists, Arun

Dravid was not merely an academic type. He had a well rounded personality who relished challenges and inspired confidence in others. My stint with him at Jacobs gave me the confidence to branch out on my own and start my own company. When I let him know the reasons he let me go with his best wishes”.

All along this meteoric rise he continued his musical journey at tandem. As a matter of fact, his pursuit of music must have been the skeleton key to his inner serenity. His first public musical performance was at CJ Hall near Regal - he was only 11 and barely 4 months into his formal training - when he was took part in an open music competition among adults. His Guru told him “*beta bhag le lo, jo kuch ata hai ga lo...*” Stage fright is not the preserve of the young and those 15 minutes when he sang rag Bhim Palash set him free to soar.

Soar he did. With concerts across the country and over 50 concerts in USA as well. He was now a Guru in his own right with his own bevy of students to pass the heritage on. His friend Gaurang mentioned “I have also been fortunate to enjoy his concerts which were attended by a large audience. He is an accomplished vocalist, performs concerts in USA as well as India, and is teaching music to a number of students”.

A teacher’s mantle sits easily on him. Along with his responsibilities in the company and his devotion to music, there was a third important dimension in his bag of careers, that of an active academic - as a visiting professor in both UDCT and IIT Bombay - with a slew of papers in top technical journals of the country and abroad. The awards and accolades that he has won would be too numerous to list in this biography but the one that is most relevant to us is when he taught both B. Tech. and M.Tech. classes here at IIT

Bombay in the period between 1980- 86 and sat at the senate between 1984-86. The Institute conferred the Distinguished Alumnus Award upon him as far back as 1983.

Despite his stellar achievements, Dr Dravid remains simple, approachable, and almost ascetic in his bearing. He is part of a fast vanishing breed, one who continuously underplays their achievements with an innate simplicity and grace that is never loud or in your face.

I have enough clean work that I do not need to do dirty work. I set a certain standard of ethics in the company and that is the way it still is today when I am no longer actively at the helm.



These are values deeply ingrained and what he learnt at home. He spoke of how despite being the son of an ICS officer he never got the *sarkari* car to go to school. He got char *annas* daily from his mother - two *annas* to cover his bus ride to and fro, one anna for lunch, and one for emergencies, which had to be returned when he got back home. There were never any odd gifts or even *Diwali Mithai* that father got from office and this personal honesty and upright nature he learnt from his father stayed with him for life. When he spoke of the legacy that he left at work it was not the company's change in fortunes that he holds most valuable. "I was the managing director of my company in Mumbai for a good 15 years. I would get offers and suggestions but my answer has always been, - I have enough clean work that I do not need to do dirty work. I set a certain standard of ethics in the company and that is the way it still is today when I am no longer actively at the helm. You leave the stamp of

your values on of how to live a clean life"

Dr Dravid continues to lead by example be it in his personal life, while teaching or in business where he still leads corporate growth and diversification activities and long-term planning and leadership at Jacobs Engineering India as Chairman.

This rather long essay is not an exercise in self righteousness nor is it an effort to eulogise and create larger than life characters. We do these celebratory biographies (Manohar Parrikar earlier), because at Fundamatics we would like to fly in the face of established convention. There is a complete absence of any good news in main stream media, which is replete with stories of corruption, violence, sexual scandal, man-made disaster. We believe that there is an alternative mirror to this brute Indian reality. To highlight the real existence of other realities in the form of individual narratives that have the capacity to inspire, empower and hold out hope. They all give us a different perspective of our place in the cosmos.

Arun Dravid's lifestory is an exercise in pointing out that there isn't any dichotomy between Science and Arts. He could have been a teacher, an artist and a performer, or the head of a big industrial house. He chose to be all three and with his honesty, humility, and humanity intact. He walks light and easy in all the different worlds that he inhabits and that too with equal comfort. And so could we all in our own special ways. This is our own "politics of the possible". As Mukul Keshavan once famously said in Outlook Magazine "the moon also waxes".

Economics of Progress and Need for Nature Restoration

Ajay Phatak

How did we reach where we have reached today?

If we ask a question why do we need economics in the first place – “for progress” will be the quick response. Having said that current economics should be about progress, we will see in this paper that conventional economics is not all about progress. It deals merely about allocation of resources based on competing wants. As buyers and sellers of these wants meet in the marketplace to bargain, the resultant prices of needed commodities and services emerge - which are fair and beneficial to both parties. In the real world, the choice is never free; and infinite number of buyers and sellers is also not a reality. Therefore the resultant price is a result of the relative strength of buyers and sellers.

The private profit motive leads to artificial lowering of prices of natural resources and labour. At the same time this motive treats nature’s services as free and therefore results in lower income for labour and owners of natural resources. This lowering of income among the majority of people leads to a failure of demand and recession from time to time. This happens due to failure of demand arising out of lack of purchasing power. Severe recession from time to time has given rise to state intervention in economic affairs; the data for this cyclic recession is well

known and publicly available.

It was expected that state investment in basic necessities would lead to a trickle-down effect creating large scale employment and generation of income among the masses. This was then expected to lead to revival of demand. Yet the faith in free competition continued among economists and state intervention was felt necessary only during recession. Market was still supposed to be the main arbiter in distribution of wealth.

Technologies developed during World War II were used during peace times to convert production systems to a gigantic scale; weapons were needed to be produced in very large numbers in very short timescales. This facet then became so ingrained in the production system that mass production became a fundamental dimension of modern industry after World War II. As demand for the necessities of life is limited, mass production essentially implied production of items of consumption, which are over and above daily necessities. This also led to “creating” markets and wants. In effect mass production involved production of intermediate goods and induced people to buy these goods, which were not essential commodities - Such as buying far more clothes than one would ever need, and buying other goods such as cosmetics. This whole machinery of demand creation came into existence.

The inducement to create the machinery of demand creation was not based on equitable distribution of wealth. That meant that the prices of natural resources and labour continued to remain low and nature's services continued to be treated free.

Mass production and its role in depleting resources

Mass production of intermediate goods and emergence of the service sector based on

In this economics of “more”, we have taken nature for granted. We have assumed that these natural resources that we bank on are indeed infinite and free. Unfortunately neither is true.



technological advances made during this time created the illusion that man-made capital such as saws, and natural capital such as trees - are interchangeable! Man-made capital can only use natural capital, if the natural capital exists in the first place.

Mass production created a strain on non renewable resources (such as coal and oil) on one hand and created enormous waste which could not be absorbed by natural processes on the other. Pollution of atmosphere, water, and soil was the result. The state was again called in to intervene, this time to enact legislation to prevent pollution. However, technology was further developed to reduce pollution. This created an illusion that man-made capital can be a good substitute for natural capital.

Demand continued to be artificially enhanced through a philosophy that aggregate demands are infinite and aggregate production can be made infinite. This was the start

of the economics of “more” – that is growth economics.

Progress v/s Perceived Progress

All of us want to progress and want to move towards improved well-being. The definition of progress as provided by the Webster's dictionary is “gradual betterment”. This betterment must be with respect to the majority of people and not limited to a select few. Ideally this has to do with balancing of the availability of resources, renewability of resources, allocation of resources and fair distribution of wealth among the current population base. If progress must deal with these elements, the economics of progress must deal with all of these too.

Today's economics can well be termed as economics of “more” – that is growth economics. This economics is a post world war II phenomenon and arose out of advances in technology! Technology became available to produce things with less and less people at faster and faster pace through automation. This excessive production has led to need for extraction of “more” natural resources and creation of more and more waste. This meant that the producer could always produce surplus and one needed to “market and sell” these surpluses. This also meant urgent need to induce increase in consumption – somehow.

As real income or income after adjusting for inflation did not increase for the masses, there was no real increase in purchasing power of the masses and they were offered increased consumption on credit leading to increased indebtedness. Places where the habit of savings was not encouraged, capital formation did not come through savings but came through credit instruments. This led to all-round increase in indebtedness, not only of the state but also of the entrepreneurs.

This also refers to the profligacy of the state in case of developing nations – spending beyond means is what this alludes to.

Consumption driven trickle-down effect

Another interesting phenomenon must also be noted – More consumption at the “wealthy” end spurs need for more services and products, leading to more “stuff” being produced by more people. These are the same people who start earning more and start asking for more, with an expectation that the lowest element of the ladder will achieve that elusive progress if this pyramid keeps growing before we exhaust all the natural resources that we have! All of this was wonderful till we realized that for this “more” of everything we must depend on nature. Considering that natural capital is finite, we have to use Natural Capital wisely and restore as much of this capital that is not irreversibly lost. In this economics of “more”, we have taken nature for granted. We have assumed that these natural resources that we bank on are indeed infinite and free. Unfortunately neither is true. The economics of “more” can only be sustained by keeping the prices of natural resources low or zero. Historically, this was due to the monopolies established by western European countries on natural resources from their colonies. This enabled them to extract minerals like coal and oil and agricultural products such as cotton at extremely low prices. Economic growth was spurred as these low input prices led to high profits.

Technology, scale and diversion of energy and materials

Advances in technology based on availability of cheap energy and materials increased the scale of production enormously. This technology continued to use enormous amount of fossil fuels leading to substantial increase

in CO₂ emission and other GHGs – thus contributing to global warming and climate change. Climate change is just one serious side effect of the economics of “more”.

Increased scale led to compulsion to sell. Large population was therefore looked upon as a large “market”. Depletion of natural resources and serious damage to natural processes led to increasing the load on the natural capital even further! It must be understood that population is a deceptive

It is a popular belief among traditional economists and expert technologists that man-made capital and natural capital are interchangeable. This is a complete fallacy.



denominator; aggregate consumption is a better measure of extent of use and destruction of natural resources for communities and nation states. However, increase in aggregate consumption did not lead to optimum distribution of consumption among the population. Large population meant that the piece of cake per head remained so small that for many it meant starvation and poverty. Taking due measures to manage and control population is equally important in promoting progress.

It is a popular belief among traditional economists and expert technologists that man-made capital and natural capital are interchangeable. This is a complete fallacy. One can very easily see this through a simple example – you can make as many saws (Man-made capital) but you can use these only when you have enough trees (Natural capital)! You may be able to make better or different saws through technology but it is still necessary that we indeed have trees if we

were to use these saws. We cannot interchange saws for trees. The days of taking natural capital for “granted” are over. Such is the dependency of technology on nature. Technology cannot exist in a vacuum and in promoting use of technology blindly, which in turn uses more natural capital, we are destroying our chances of living well in a not so distant future.

Distribution imbalance and impact on peace

If we believe that “peace” is an integral element of progress, we must also look at how the resource use can be equitable. A well-known historical event, the French revolution, is an excellent example of how unequal distribution of resources and income triggered social unrest and revolution. We need to ensure that the infrastructure that the governments build has such characteristics that social equity is built in. Interestingly, if we take into cognisance conservation and judicious use of natural resources, the policies would automatically drive us towards those which will also bring in social equity. If resources are used to create services required by the majority, the allocation of resources does not depend on market price but on equitable distribution of purchasing power leading to another step in creating better equity.

What do we therefore need to do, if we are to address progress for all? The answer is not too complex, if we make sure that we define progress as “well-being for all” rather than this getting entangled in the “growth is progress” paradigm, and “progress” as it is defined here as a driver for policies, we will certainly have policies which align very well with the core principle “well-being for all”.

Economic dimensions

Therefore if we want to promote this economics of sustainability for progress and peace, we must address these three dimen-

sions:

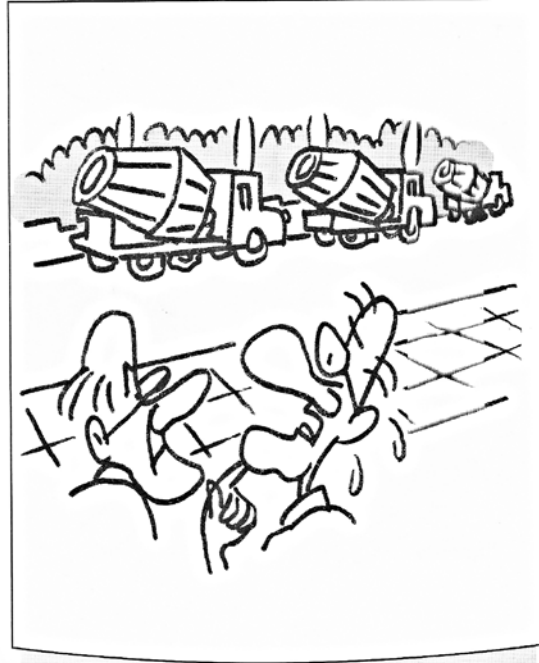
1. Sustainable Scale of economy as whole,
2. Appropriate allocation of resources, and
3. Equitable distribution of wealth.

The scale should tell you about sustainable level of production and consumption, pricing should talk about proper valuation of natural resources and services and the resultant allocation will then address the aspect of equitable distribution of wealth, which will bring in the most desired and yet elusive part of progress, that is peace! When resources remain adequate through measures of restoration and sustainable consumption, and public spending is targeted to creating what masses require, we could possibly attain that peace – at least within the nation.

Connecting products to resource use

Let us now delve a bit into the way business is done today. Most businesses produce products directly or indirectly. Every product produced and service delivered needs natural resources and energy. Let us take a case of a modern gadget like a mobile phone as a product and calling from such a phone as a service. In the process of making a mobile phone instrument, we need silicon (derived from sand) for processors, plastic derived from crude oil; batteries require other minerals and rare earth elements among other resources. Each of these components also requires substantial energy in the process of production. In case of a service to be delivered like a phone call from a mobile phone reaching the desired destination, we need towers for wireless communication, made of steel, which comes from the iron ore that we mine. It also required energy, every time the phone connection is established and you spend time talking or listening. This energy comes from the rechargeable batteries. Every

'..Wonder if we can still reword our request for a 'concrete plan' to 'address the environmental problems'?'

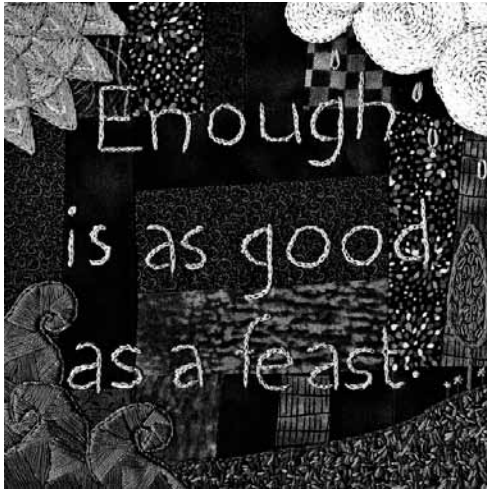


person, as a part of this economic process, needs ecological services – some of these are clean air to breathe, clean water to drink and productive soil. Water that is potable and air that is “breathable” is a direct product of sound ecology delivering eco-services, which we have always assumed to be free. These indeed could be “free” if we respect the limits that nature has imposed on resource use for production and consumption. If our current “production” process is to sustain, we must therefore limit using natural resources such that the use is within the bounds of regenerative and absorptive capacity of nature. Only then we can achieve sustainability. If we design our “business” to basically provide services rather than products, thereby aligning the interest of the producer and the masses, the resultant allocation of natural resources will lead to social welfare. Take the example of “Mobility” as a service rather than car as a product. The end objective of a car is moving a person or a group of

persons from starting point to destination in a comfortable manner. Now if we design our system of moving people around the end objective, we will use fewer resources and achieve all of what we may want to achieve. This clearly says that businesses of the now and future must be focused on “why are they producing” what they are producing. Developing “right” technology which will help people and the planet live well is crucial. Technology and programs should be so designed which can create alternate livelihoods and also regenerate natural capital in the process.

Conclusion:

Let us summarize by looking at the inputs, processes and outputs. We have to make sure that inputs are available, meaning natural resources are available. This leads to a policy of conservation and restoration of nature. Some other salient points would



include move from “more inputs” to “fewer inputs” for the same outcome, use resources sustainably. This means we must always think of our ability to replenish resources, if we were to use these resources at all. We must understand the fragility of ecosystems and collapse of such ecosystems means depleted eco-services delivered. Another important aspect is aspect of spending public money for creating public services. One important observation is “public services” are those, which can indeed be used by a very large percentage of the population in a meaningful way. A good example, of miss-directed public spending especially in developing economies is building “more” road infrastructure which is used by the 2% car owners, instead of focusing on inexpensive public transport, which can be used by a large percentage of population. Thus, all the money collected by governments must go into building services for the masses – whom they represent. One of the most important points – often missed - is the need to re-direct attention and investment in creating natural capital by restoring nature.

The discussion clearly points to certain policy directions. I would like to provide these concrete action oriented policies for progress

and peace.

- Maintain availability of inputs required for survival and wellbeing. Ensure conservation and restoration of natural capital. This will include specific restoration programs for rebuilding climate and geography specific ecosystems.

• Aggressively pursue demand side management principles in planning. As an example, policies must get vehicles off the road if we make sure that we define progress as “well-being for all” rather than this getting entangled in the “growth is progress” paradigm, and “progress” as it is defined here as a driver for policies, we will certainly have policies which align very well with the core principle “well-being for all”.



rather than building larger roads, bridges and highways.

- Look at end requirements and promote methods and policies which will require fewer inputs to deliver similar outcomes.
- Promote local businesses delivering services for the common man with sustainable use of resources.
- Public money must be spent for public good and therefore should go into creating services for masses. Government must understand the need to use money in public services that can and will be used equitably.
- Let us put value on the natural resources and treat that as an asset class and policies to foster investment in this asset class. If the value of this asset class is reflected in

accounting with a strong positive bias, we will have more and more businesses investing in restoration – at least for the resources they would continue to need for their business.

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Ajay Phatak

Ajay Phatak works as a VP of Symphony Teleca Corporation, a technology development company and is professionally trained in Chemical Engineering, Computer Science and Natural Resource management & restoration. He believes that paradigm shift in economic thinking and policy is the best way to shift the behavior of a common man towards making the world more sustainable. Ajay lives and works in the City of Pune in India. He can be reached at ajayphatak@iitbombay.org



The Court of the Crimson King

“Madhouse: True Stories of the Inmates of Hostel 4, IIT-B” chronicles hilarious anecdotes from the residents of H4 from the mid seventies to the mid eighties. Without doubt, the most talked about story is on page 58 - about an audacious attempt to get an elephant on the campus as part of a publicity campaign for the H4-H10 PAF, then known as EP (short for Entertainment Program). The story is a vivid recollection of the entire process of procuring an elephant, which involved trips to police stations, temples, zoos, beaches and studios. Eventually, the elephant was procured in the nick of time, thanks to the largesse of a dreaded underworld don, Varadarajan Munniswamy Mudaliar, better known as Vardabhai.

Creators of Madhouse spent painstaking hours trying to source photos of the event. Those were the days of analogue cameras and very few could afford colour reels. Somehow, the elephant photos remained elusive and Madhouse had to be published sans the photos. But thanks to dogged persistence from Tara Banerjee nee Subramanian, 3 photos clicked by her friend (now husband), Soumitra Banerjee, have been located. Soumitra Banerjee is named in the story as one of the team members of the elephant search committee and is specifically credited for having discovered elephant dung in a ground at Goregaon under the glare of his mobike’s headlights.

Tara’s discovery led to jubilation in the Madhouse yahoo group. It also brought forth many more recollections about the actual elephant event on the campus, something that has not been mentioned in the elephant story in Madhouse. The Madhouse gang decided to share the photos and some unpublished recollections with Fundamatics.

Jumblebee with the help of some H 4 -ites

After Bakul came in dancing at midnight and shouting that he had found the elephant, some of us quickly started making a banner that we would hang on the elephant. While making the banner, I think it was Sid who asked, “What if Bakul is pulling a fast one on us?”...Sood replied that if Bakul was faking, we will turn him into an elephant and ride him.

~Chetan Chitnis

Soc-secs Jetu and Vijji decided that we would have a procession of toga clad freshies dancing before the elephant and someone would play drums and someone else would blow a bugle. Some of us freshies were asked to report to H10 common room in shorts and a T-shirt and we would be helped to dress up in togas. To our delight, we found that it was none other than Vijji herself who asked us to take off our T-shirts and she then wrapped a toga around us. When the seniors learnt about this, they were furious and some of



them actually wanted to run back to H4, dress up in shorts, and then volunteer for procession duty.

~Sandip Tarkas

When Mukta was climbing the elephant, she was made to take off her spiky heels. Much later, near the gymkhana, some guys decided that Sameer and Mukta should get off the elephant and let the others ride. Mukta was a sport and decided to walk back to the hostel barefoot. But our gallant Soumitra stepped in and dropped Mukta off on his mobike, barefoot of course.

Similarly, there are many other bits....about how we collected a small bundle of leaves and twigs thinking that it would suffice for the elephant. How she gobbled it up in nano-seconds. How she broke coconuts and passed on to the mahout. How the mahout had trained her not to pick up anything less than a 50p coin. She actually threw a 10p coin back at Deepak Tiwary. How the H3 guys refused to lend us their bugle....they had smelt defeat the moment the elephant walked into the campus. Many more memories flashing through my mind as I write this.

~Bakul What about the near no-show.. elephant is lost, patrols (bakul, banerjee, etc - with motorised vehicles) scour neighbouring areas till elephant is sighted - phone to hostel, elephant is smuggled past bewildered scrooty

to H10 & hidden there; somebody - don't remember who - was actually charging people for rides at some point

After gobbling up the leaves, we had to acquire a humongous amount of sugarcane to feed the elephant... after eating which, the aforementioned elephant shat - excuse the grossness ladies, but truly it was a sight - an enormous quantity of green and smelly crap that was deposited... only after this were we permitted to start dressing up the elephant, etc - all of which was done in the vicinity of green and smelly.

Incidentally, maybe that's what the H3 guys smelled! ;-)

~Jetu

Forget the elephant....I shat more when elephant didn't show up by 5. :-) I set out looking for the elephant and reached all the way to Saki Naka without sighting it. Called up Jetu on phone in panic. Thankfully, it was one of the rare days when the H4 phone worked. I was busy dreaming up schemes about calling up our Powai corporator Chittaranjan Sharma to lend his truck to carry the elephant if and when we found it. We needed to parade her before 6 PM near the Convo. But when I called next, I was informed that Soumitra had sighted the elephant barely a km away. I rushed back to see Jetu near the main gate trying to implore the scrooties to



let the pachyderm in. And when guys saw me, they guffawed away about how I missed such a huge animal.

Yes, the ghanna juice guy at YP had a field day with bumper sales of his sugarcane, which we discovered was frightfully expensive. And Jetu was blowing money away on sugarcane after having stopped my fuel bills for the past few days when we were on an elephant hunt.

And watching Mukta scream when the elephant got up was another sight. Contrary to popular opinion of that time, an elephant doesn't rise level like an elevator. He gets up on front haunches first and all its occupants are inclined at 45 degrees for a fleeting moment. That was enough to make Mukta scream. :-) And Sood was the sloganeer leading the toga boys. At one appalling moment, guys were actually shouting, "Desh ka neta" and the chorus shouted, "Crimson King". Another stage, Soumitra started singing "Haathi saath badhana" to the tune of "Saathi Haath Badhana". But the ultimate moment always will be the one enacted by Fish and narrated in Madhouse. When Prof Subhash Babu came jostling through the crowd to ask Fish, "Ashvin! Ashvin! What is this?" and our man deadpanned, "Elephant".

~Bakul

Hi Tara & Bakul -What a blast from the past! So much fun to see these pics ..Tara - thank you for ferreting them out. And just in time to show my kids (who will be coming home for Thanksgiving)that their mom in fact rode an elephant at IIT Bombay :). Also,you are right -that is Indira Verma in green. The girl in white is not Vijji, but the name slips my mind at the moment. And everyone guessed Chayanika correctly.

~Mukta

I wish we had found them 4 years back I had searched so many places in India as well as Indonesia.... And I couldn't for the life of me imagine where they could be... Anyway, better late than never. It really stirred up the Nostalgia; down memory lane :-)

~Tara

Through the 'eye' of the Moment

Dhananjay Saheba

Surely art is God's own gift to man. It can create great beauty. It can move us deeply. And it can turn the mundane into the extraordinary. I consider myself enormously fortunate that I enjoy art in its myriad forms.

Unfortunately I have little talent for the great visual arts – painting and sculpture. So I dabbled a little in photography in the 80s and then pretty much gave up. A few years ago, quite by accident, I came across a column on the web raving about a digital camera from Panasonic with Leica optics. Then a few weeks later, I saw the camera in Mumbai at a shop near my house. I bought the camera. Thus began my second journey in photography.

Although I had always looked askance at digital photography, I soon discovered that it can deliver great results. Around that time I came across an artist who made exquisite computer generated art. I figured I could try the same technology to print my photographs. I learnt from him that he used an Epson inkjet printer to create his works. From the Epson website I learnt that the technology is quite expensive and it would be quite a challenge to keep it in good working order with the very limited amount of printing I was likely to do. The local Epson sales office guided me to a couple of companies in Mumbai who have the technology. Thus I met Vilas who does all my printing for me.

When I had the first set of photographs printed, I took them to Geetu, a friend of mine who deals in contemporary Indian art, and whose eye I respect. Her reaction was, "not bad Sheba, not bad at all". To me that was indeed high praise (Geetu comes from the Don Imus School of criticism – her highest praise for restaurants, movies, etc. is "hey what can I say it doesn't suck!"). With this validation began my career as an artist.

A seminal moment in my career as an artist was having one of my photographs auctioned in New York. Granted, it was for a charity, but hey, it was an auction and it was in New York!

About my work: my photographs are totally serendipitous; they are scenes that I have captured by being at the right place at the right time. Hopefully I have managed to capture some of the beauty that I perceive.



**Dhananjay
Saheba**
B.Tech. '77, EE

Dhananjay Saheba started his career in telecom with Bell Labs. In 2000, he joined Hughes Telecom as the CTO and subsequently became a part of the Tatas. In 2008 he founded iJunction, a company focused on value-added telecom services. Some of his work can be seen at <https://sites.google.com/site/dsahebaphotos>



Langur, Kanha National Park, Mar. 2008



The Murder, Colaba, Mumbai, Feb. 2010



Coming Home – II, Mumbai Harbour, Jan. 2011



The Thief In My Room – I, Agra, Oct. 2009

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Innovation: Is it Serendipity or is it a Process?

Subhash Tantry

Can innovation be a *managed* process for individuals and organizations?

For several centuries now, there has been a belief that serendipity plays a major role in the discovery of innovative ideas, products, and services. Over the last century, however, this line of thinking has given way to the belief that creativity and innovation are the result of a process that can be learned and managed.

Yet, when you think about it, Velcro, penicillin, X-rays, Teflon, dynamite and several other truly innovative inventions have something in common: Serendipity! These products were discovered by accident, just like hundreds of others that modern human civilization is so dependent on.

The dictionary meaning of serendipity is “The faculty of making happy and unexpected discoveries by accident.” Royston M. Roberts, author of *Serendipity: Accidental Discoveries in Science*, believes that there are two classes of serendipitous discoveries: those discovered through **true serendipity**, which describes accidental discoveries of things not sought for, and those discovered through **pseudoserendipity**, accidental discoveries of ways to achieve a sought-after end. A couple of stories will highlight these points.

One day in the early 1950s, George de Mestral came back from a walk in the countryside of his native Switzerland. Back home, he noticed

that his coat was covered by cockleburs. Picking them off his coat, he wondered what made them stick so tenaciously. His curiosity led him to a microscope to investigate what was happening. He discovered that cockleburs were covered with hooks, and the hooks had become embedded in the loops of his coat’s fabric. This was nature’s innovation for dispersal and reproduction of the cocklebur plant so that its seed burs could become attached to passing birds and animals. de Mestral wondered whether a concept patterned after the cocklebur could be designed to the benefit of mankind. The rest is history - the concept evolved into a commercial product called **Velcro**, its name derived appropriately from *velvet* and *crochet*.

de Mestral’s discovery was of the “true serendipity” kind, as he accidentally discovered the idea behind Velcro even though he never intentionally sought it out. It was his curiosity that led him to conceptualize the idea, derived from observing nature.

Like de Mestral, many people who have made discoveries through serendipity willingly admit to it. Louis Pasteur made clear his acceptance of it by recognizing that “in the fields of observation, chance favors only the prepared mind.” This leads to the second aspect of serendipity, that of sagacity. Sagacity requires the wisdom of “a prepared mind”; one that is knowledgeable, driven by curiosity, perception, and deep insight. Discoveries in this realm are sought after, and hence fall under the classification of having been the result of pseudoserendipity.

To exemplify this point, we turn to Charles Goodyear, born in 1800 in New Haven, Connecticut. An inventor by temperament, he became fascinated with the possibility of making rubber that would not be affected by temperature changes, allowing it to be useful in numerous ways. This fascination

affected his health and consumed what little wealth he and his family had. In fact, Goodyear went to debtor's prison more than once and became dependent on relatives for food and shelter. Nonetheless, he persisted. After many unsuccessful attempts to treat rubber, including mixing it with sulfur, he accidentally applied heat to this mixture and discovered that the rubber did not melt! In additional tests, he calibrated the optimal temperature and the time of heating for stabilizing rubber to achieve the properties he desired. Goodyear then applied for a patent that was granted in 1844 for a process he termed *Vulcanization*. By 1858, the value of rubber goods produced using this process reached \$5 million. The Goodyear Company was founded in Akron, Ohio in 1870 and is now a multi-billion dollar company.

Goodyear was a model example of an entrepreneur with persistence. His methods of discovery were not necessarily scientific, but he knew what he was looking for, and his persistence paid off.

If pseudoserendipity requires curiosity, perception, knowledge, insight, and persistence, can innovation be a *managed* process for individuals and organizations? In order to be successful in today's competitive business environment, every individual, whether an entrepreneur or a person who is part of a research laboratory in a large organization, is required to be an innovator. Few possess creative genius, which means most of us need to learn to innovate. Therefore, it is necessary to characterize innovation as a process with well-defined stages, roles and methods.

Of course, since no one individual can play every role or have the capability to execute alone on all steps of the process, innovation must become a team effort! In order to achieve ambitious goals, people need to leave their egos at the door and work collabora-

tively with great persistence to execute on the process of innovation.

Roger von Oech, author of *A Kick in the Seat of the Pants*, describes the roles individuals or organizations have to take on in order to properly nurture innovation and creativity. During the idea-generation phase, the four roles required are those of:

1. An Explorer, when you are searching for new information. Curiosity, openness, and a resourceful approach are important in this phase.
2. An Artist, when you are turning your resources into new ideas. Imagination, flexibility, and creativity come into play at this stage.
3. A Judge, when you are evaluating the merits of an idea. Balance, objectivity, and an ability to critically examine a concept and make decisions are necessary here.
4. A Warrior, when you are carrying your idea into action. This phase requires a single-minded purpose, a plan to get to the goal, strong motivation, and bold action. You need to capitalize on your resources and skills while using your energy wisely. And most importantly, you should remain optimistic and be persistent in the face of obstacles.

These roles speak directly to the process of conceiving and implementing a product idea. The next phase in this process is that of Commercialization -- a completely different ballgame. Remember that numerous ideas may fall by the wayside on the path to commercialization. This winnowing is a good thing and usually leads to a better product.

As a rule, the process of commercialization is very customer-centered. It is also a collaborative effort, dependent on the subject matter expertise and the synergy of the team. One

particular company that has executed on this process very well is IDEO, often described as the most successful industrial design firm in the world. They have created new products that have been extraordinary commercial successes, including the Palm Pilot, toothbrushes for children, water bottles that keep mud out of our mouths, and stackable shopping carts.

Tom Kelly, a co-founder of IDEO, has captured the innovative product development process in his book, The Art of Innovation. Using this process, the IDEO team has helped create products that have saved scores of lives; from portable defibrillators and better insulin delivery systems to devices that help grow sheets of new skin for burn victims. The five-step process described in the book is as follows:

1. Understand the market, the client, the technology and the perceived constraints on the problem.
2. Observe real people in real-life situations to find out what makes them tick, what confuses them, what they like, what they hate, where they have latent needs not addressed by current products and services.
3. Visualize new-to-the-world concepts and the customers who will use them. Some people think of this step as predicting the future. It is probably the most brainstorming-intensive phase of the process.
4. Evaluate and refine the prototypes in a series of quick iterations. No idea is so good that it can't be improved upon. Get input from the internal team, from the client team, from knowledgeable people not directly involved with the project, and from people who make up the target market. Watch for what works and what doesn't, what confuses people, what they seem to like, and incrementally improve

the product in the next round.

5. Implement the new concept for commercialization. This phase is often the longest and most technically challenging in the development process.

In some ways, these are simple concepts, but when taken together, they represent a forceful yet realistic mode of thinking that can lead to tremendous success.

There has always been a lot of romanticism associated with the conceptualization of new ideas. The sense of mystery associated with creativity and innovation is very attractive to entrepreneurs and investors alike. However the truth is that most successful innovators are also firmly grounded in reality.

Over the years the process of innovation and commercialization has been demystified, allowing a great many of us to see a clearer path to success. The markers along this path, some of which have been outlined above, can be used to bring method to madness and make the most out of your own creativity and that of your organization.



*Subhash Tantry
B.Tech, 1975, ME*

*Subhash Tantry
B.Tech, 1975,
Mechanical Engi-
neering, is a*

*Founding Board Member of the IIT Bombay
Heritage Fund, a TiE Charter Member and
CEO of Fox Technologies, Inc.*

M & B 2002

When Anjana Meel came to IITB in Fall 1997, she seemed the serious & studious sort. Very focused on acads, she was usually found mugging in the very first week of the semester! Copies of her class notes were a common sight during endsems & her classmates are thankful nothing changed about her habit of attending classes religiously. What slowly did unearth itself though was her totally bindaas and fun-loving attitude. Be it the dance floor of a PAF or a dandiya that she participated in or an impromptu cack session, her infectious smile always lifted the mood. It also pierced many hearts along the way! Quite a few even revealed their feelings, but she shattered every dream. Initially, it seemed that Goli would only be an addition to the victim list (her first reaction when Goli expressed himself was along the lines of "how dare he?"). But she hadn't realized that the charmer was about to be charmed!

Goli (officially known as Sidhartha Goyal) got his pet name for his cherubic good looks which were (and still are) really hard to resist (for EVERYone ;)). But more than just the looks, he has an uncanny ability to immediately put you at ease and win you over, all with a mischievous smile which seems to keep indicating otherwise. Right from the onset of his IITB days, he established himself as the chief trouble-maker & the most trusted friend, all rolled into one. And he put this charm to good use! From inviting himself

to mess cook's home for special homemade meals (Goli loved to eat) to romancing two female leads in an H3-H10 PAF - Goli effortlessly won many hearts on the campus. But winning the heart of the one person he lost his own to was not going to be as easy!

Introduction by Gaurav Bansal

Anjana & Goli's STORY



Rephrasing Dostoyevsky, "All IITB love stories are alike (making their way through PA calls, and maggie bondas, and ending up on Powai lake); but each one gets there in its own way". Hence, here is a 7-act play depicting our improbable journey to Powai lake.

Stage: Two chairs each under a spotlight and occupying half of the stage. The spotlights alternate between the characters as they address the audience.

Prelude:

Goli: Anjana was a friend of my friends. A bunch of guys from Jaipur - Ajay, Gaurav,... were in H3 (my hostel) and they knew Anjana. So I had a foot in the door...

Anjana: I think I first saw Goli in person

during his Sophie's social performance which I really enjoyed and then I also realized that he was the same person whose name popped up in a few of the Kota stories told by Divya.

Act 1: Cold breeze

Goli: My first real memory of Anjana was when she came to H3 fete (cheekily named HTTP - Hostel Three Time Pass) sometime in first semester of our second year. It so happened that Ajay, Anjana, and I were

Rephrasing Dostoyevsky,
"All IITB love stories are alike
(making their way through PA
calls, and maggie bondas, and
ending up on Powai lake); but
each one gets there in its own
way". Hence, here is a 7-act
play depicting our improbable
journey to Powai lake.



going around the fete. I was trying to be cool to impress her (it still puzzles me why, but I suppose that is what teenagers do). She was ruthless and made sure that I failed completely and surely. Some of you who know Anjana will realize that when she gives you a cold shoulder, you freeze!

Anjana: Every IITian girl would agree that this was quite a common scene in those glorious days and everyone had to figure out their ways to react to such situations. For the record, I deny all allegation of "ruthlessness". I was just NOT interested.

Act 2: "Friends"

Goli: It was December and MI (Mood Indigo) was happening. I can still see me and Anjana practicing for a couple's miming event. I was a bit into the insti dram scene by

then and Sumit Agarwal (who was one of the cool dram studs on campus) was directing us. An important part of our act was a few steps of waltz, which Sumit made us do literally a hundred times. It was a perfect Dec stary night and all three of us happily waltzed away for several hours on the OAT terrace. And then it was Sumit (he had a bike) who got to drop Anjana back to her hostel.

Anjana: That was my first and last miming event ever. Can't remember for sure but I think we won that event. Soon after this, we went out for New Year 's Eve celebration with the Jaipur gang. I clearly remember while walking to the YP gate, Goli started bombarding me with compliments: "Where did you buy your shoes... they are really nice? I also really like the color of your suit! And those earrings also go very well!"

Goli: It was sometime in that Dec/Jan when I got smitten: good looks, even better heart, shy smile and, most importantly, a "strong" feeling that she liked me too were some of the reasons! So now I was looking for excuses to hang out with Anjana. I ended up as a participant in Techfest's teaching competition, which she was organizing. I worked hard for it (surely a night out was put in) but I missed winning the competition. After the competition, Anjana said to me "meri nazar mein to tum hi jite ho". It was very clear that she was interested in me!

Anjana: No I was not! Its sheer exaggeration! What I meant was that most of the judges (professors) made good comments about his teaching style on the blackboard as opposed to the slide presentations. Considering that, he could have been a winner.

Anyways, I wouldn't say that we were very good friends by then but I felt quite comfortable around him. In those teenage years, the immature me was good at finding some

weaknesses in everyone but I had not found any in him so far (if you ask me today, it's a different story). Sometime after Techfest, I remember thinking about Goli as I passed by the room where teaching competition was held. Two minutes later I saw him at the coffee shack. Looking back, you can say that this was a DIL TO PAGAL HAI moment. Or perhaps, he was just stalking me!

Act 3: Aar ya paar (Cliff hanger)

I was deudas-ing around for a few weeks and then the fate struck: H3 got paired up with H10 (her hostel) for PAF (Performing Arts Festival)! I got cast as the "hero" in a romantic love triangle. And, wait for this, the title of the PAF was "Where there is a will". Although "the way" magically turned into a dance floor and soon I was burying all my sorrows in the arms of two cute girls!



Goli: So I confided in DK (Deepak Kumar) about my emotions sometime in early Feb. DK who was (and still is) known to wear his heart on his sleeve was clear about one thing: ek baar dost ban gaya to dost hi reh jayega (make your intentions clear early!).

DK put his foot down and before I knew I was in front of H10 on Valentine's day right in between midterms. I went with a red rose and a small glass shoe (which I later realized was an ash tray!). She was quite shocked and said "I have no such feelings for you". It all ended just in a few minutes. It was horrible.



I spent the rest of the night at the temple on the other side of Powai lake with DK, slowly chewing on the petals of the red rose (it is true!).

Anjana: I was SIMPLY shocked with a feeling that he just doesn't know me enough. His act was quite immature and very much in contrast to the image of him that I was carrying in my head.

Act 4: Tug of war- Mind vs. Heart

Goli: I was devdas-ing around for a few weeks and then the fate struck: H3 got paired up with H10 (her hostel) for PAF (Performing Arts Festival)! I got cast as the "hero" in a romantic love triangle. And, wait for this, the title of the PAF was "Where there is a will". Although "the way" magically turned into a dance floor and soon I was burying all my sorrows in the arms of two cute girls!

Anjana: Ironically, I was told that the "hero" has been quite sad since the Feb fiasco. What

I saw was quite the contrary. Let me explain. Most of the practices for H3-H10 PAF were happening in the H10 mess, which I could directly see from my room. After knowing who the lead actor was and how sad he was supposed to be, I had decided to keep away from PAF to not make it worse. However, all I saw was the Shahrukh Khan from Yash Chopra movie snugly dancing with the two beautiful heroines for endless hours and months. As you can imagine, I had bitter-sweet feelings about Mr. Khan by the end of the PAF... But I was still very happy that the dancing was over!

Goli: She walked up to me right after the final PAF performance and said "great show." Our first conversation after the D-day. I did not make much of it other than politeness; we still had common friends.

Act5: You've Got Mail

Goli: Soon it was summer and I went to

Bangalore for a summer project at IISc. Science and loneliness perhaps got the better of me. One night after watching "You've got mail", I wrote a long (and very adolescent) letter. It was more like a diary entry, but then I posted the letter. Can you believe that? I blamed Meg Ryan and wished that it self-destructed.

Anjana: At first glance, my mind murmured "What is this guy thinking?" and my heart tickled "He was indeed sad". A week later, I was back in IIT for a summer project. I can't explain why but I wrote him a simple "How are you" email. After not getting any response for a month, I re-sent the email and the person wrote back saying "I would love to know you more but I am not who you are looking for" (Thanks to dozens of Siddharth spellings!).

Act 6: Phone and Airplane

Goli: Sometime towards the end of my stay at IISc, I got jaundice and went home. I think it must have been a couple of weeks into the semester that I got a call from GB (Gaurav Bansal) asking how I was doing. And then he said Anjana also wants to talk to you. I don't quite remember what she said but I literally flew back to campus (it was my first plane ride!).

Anjana: I was very secretive about this whole thing. Given this trait, I had only discussed this with GB (DK's counterpart on this side of the fence). GB was known to be a true believer of love stories with rumors that his own heart was stranded in IITD campus at the time. GB used his uncanny style of convincing people and pitched really hard for Goli with a never ending list of praises. Given the fact that he was also the original messenger of the "super sad state" before PAF, I took all of this with a-grain-of-salt.

Act 7: e-love

Goli: So, I was back on campus but was basically still on bed rest. Although I was skipping all the classes, I made Shukul (Sachin Shukla) lug me on his Atlas cycle every night after dinner to CC (computer center). I used to draft and redraft endlessly creating long emails, but all I got back was either just a few lines or nothing.

It was frustrating for me but even more so for Shukul who was literally carrying me in his arms to CC every day. Soon both of us were writing those emails. What made it work was his key insight - "always end the email with a question". It worked like a charm!

Anjana: Well, I convinced myself to reply to his emails as it felt impolite to not reply to someone who is recovering from jaundice (Reference: Goli, Act 2 "even better heart"). Emails led to live chat. When it came to my attention that he can now walk without the atlas cycle, I asked a question: when do I get your birthday treat "just as a friend"?

Goli: And soon after... there was a walk to the Powai lake....

Anjana: Just as a friend.

Goli: When we were asked what's going on, we replied "aisa kuchh bhi nahin hai - we are just friends".

Anjana: Indeed we were... for quite a while!

Postscript: Anjana & Goli got married eventually. They have since become Dr Anjana Meel & Dr Sidhartha Goyal, earning their PhDs in Chemical Engineering & Physics respectively. Anjana is working in an energy start up & Sidhartha is pursuing a post-doc. They live in Santa Barbara in Southern California – the perfect playground for this adventurous couple.

PRAJ

Creating new benchmarks in the Alcohol and Brewery Industry

Pramod Choudhary

For the last two and a half decades, PRAJ has emerged as the leading supplier of customized Alcohol and Brewery solutions to leading Indian and global spirit manufacturers. Currently, the Spirits industry is growing at a steady rate and PRAJ commands a large presence in this business - as much as 70% of the Indian and 30% share of the International alcohol market. This makes PRAJ the veritable face of an Indian business with a global footprint, making it the world's largest comprehensive supplier of process and equipment under one roof.

25 years back, PRAJ began as a dream for IIT educated Pramod Chaudhari, who had the foresight of the new trends in processes related to Alcohol production. PRAJ was conceived when the process equipment industry for Alcohol was at a nascent stage in India, making it one of the first companies in the distillery business to project 'Brand India' to a global audience.

Today, PRAJ is globally respected for Alcohol plants whose efficient technologies use frugal energy to generate maximum yields without impacting the environment. Apart from distillation, PRAJ's varied verticals also include Alcohol and Fuel Ethanol Plants, Brewery Plants, Water and Wastewater Treatment, Bio-nutrients, Process Equipment and Agri Services.

Committed to innovation, PRAJ creates

most of their pioneering know-how from fundamental in-house research. Technology, Process Engineering, Design, Manufacturing, Integration of Plant and Equipment, Commissioning, Supervision, Training, Water Treatment, Instrumentation, Automation, Effluent Treatment, Civil Work, Electrical Installation – PRAJ does it all, a veritable 'One Stop Shop', with a single point of contact and unified responsibility.

With headquarters and dedicated research facility at Pune, PRAJ manufactures products in two state-of-the-art plants at Sanaswadi and Kandla. The company has a sales and service network in every corner of India. Direct marketing and service presence in 7 international locations serve international clientele. The active integration of all infrastructure and services under one umbrella enables PRAJ to offer fast, effective, and focused solutions – anywhere in the world.

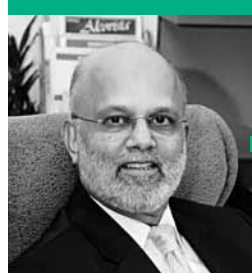
PRAJ is committed to environmental responsibility and sustainability with an active philosophy of 'Renew, Reuse and Regenerate.' Their products are energy efficient, using a variety of feedstock while delivering consistently pure outputs with large yields, while their processes are fine tuned to optimize use of resources.

PRAJ employs about 900 talented people, the single largest resource base for the ethanol industry worldwide. PRAJ manpower



represents varied disciplines such as chemical, mechanical, electrical, instrumentation and civil engineering. It also includes Microbiologists, Alcohol Technologists, Agronomists, CAD designers, and more. The synergy and teamwork gives PRAJ the confidence to undertake intricate and complex projects on a single point responsibility.

With a reference base of over 500 plants spread across 50 countries in 5 continents, PRAJ has made significant investment and commitment into finding winning solutions for the future. Whatever be the challenge, one can safely state that PRAJ will definitely invent, innovate, and integrate technologies to stay at the cutting edge of novel, yet practical solutions - Let's say cheers to that!



*Pramod
Chaudhary*

Pramod Chaudhary is a 'Distinguished Alumnus of IIT Bombay (1971)'

and an alumnus of Harvard Business School, Pramod Chaudhari is the Executive Chairman of Praj Industries, global renewable energy and environmental technologies Company, with references across five continents. He is committed to innovative solutions in the pursuit of clean technologies for sustainable environment and business.



Life on the Wild Side

For those who blame IIT students for wasting precious resources like water during the famous water fights in hostel wings, think again. Think of how much water was saved due to bathing being a weekly ritual and due to clothes remaining unwashed and un-soaped. Think of the Argentinian student Blasco Jose Sobrinho from H2 who would bathe with his clothes on and dry himself in the volleyball court using solar energy. Just reflect on the wild life viz. students who tamed snakes and scorpions. IIT students were very environ-friendly- about that, there is no doubt.

In this issue of Fundamatics, which is focused on environment and ecology, we bring you Hos-ales conforming to that genre. Stories have been sourced from the Madhouse book. The bees believe that for those who have not read Madhouse, these stories will provoke you to order a copy from IITBAA office. For those who have read Madhouse, this will be an opportunity to chuckle again. After all, laughing is good for our environment.

Bumblebee

Being a Mumbaikar, during my first semester I thought I would take all my clothes to my parents' home and have them washed there. The first few occasions my mom was very happy to accommodate me, and had my clothes washed along with the home bed sheets and tablecloths that she got washed

over the weekend. I am sure the bai (no machine washers back then) was not very happy with the big pile. I think she decided to teach me a lesson. One fine day, she delayed washing my clothes until a couple of hours before I was to leave and consequently, I had to lug a very heavy load of wet clothes through two BEST bus changes and a train ride and then finally the walk from Y Point to the hostel. I cursed the bai all the way back to my room, and I never took dirty clothes home again.

After trying to do some washing myself, I solicited advice from my wingmates. It was Benoy and Shaky who introduced me to the dry cleaning technique which saw me all the way through my bachelor life. They advised me to drop my clothes (undies and all) in the dry bucket (we each had a colourful one we had purchased on our first day in IIT). The next day reach into the bucket, pick out a pair of clothes you want to wear and off you go. Dry-cleaned.

Pol

There was a more efficient and environmentally friendly method employed by a guy some years senior to me who shall remain nameless because my memory isn't what it used to be. He was from somewhere in Karnataka (Gulbarga, Vijapur some place like that, and no this was not Thomas Mathews from H4). Every new semester he

would come back sporting a spanking new pair of jeans and T-shirt (one on his back and one in his backpack). Through the whole semester he would wear the two Jeans + T-shirt combos on alternate days but never wash or even "dry clean" them. What he did for undies I was too polite to ask him but I suspect he never wore them. By the end of the semester his clothes were black and fashionably grimy. On the last day he threw one set in the garbage, he needed the second

Selva in particular, and NWSF occupants of his time, had some of the strangest pets that I know of. One of them was called Gharpure. This Gharpure was a monitor lizard caught by Selva near Vihar lake behind H4.



set for his trip home. Story has it that his mom buried that set under a banana tree in his yard and the tree bore the most fabulous bananas in all of Karnataka.

Since the Jeans and T-shirt were made of biodegradable materials and since he never wasted any water in washing them, I must declare him a pioneer of the Green Movement. Although looking at his clothes one should probably call it the black-and-brown movement.

Satkya

This one aspect of my H4-life – my partition mates – makes the title "Madhouse" truly resonate with me.

Take Vinayak Dravid, one partition mate I had. Vinayak, two years my senior in calendar years but several years my senior in terms of his spiritual awakening, was lying on his broken bed (two slats missing) one Saturday

afternoon. His room - and hence mine - reeked of pigeon droppings. Our joint space was rocking to the sounds of two pigeons singing a mesmerizing tune. I just had to peer over our partition. The scene before me: One of the pigeons was going around in circles on the built-in cupboard. The other pigeon was circling Dravid's half-smoked cigarette, an arm's length away from a very glazed Dravid himself, looking at the said pigeon. There was pigeon crap on the desk right before him. I was stunned, and yelled first at Dravid, and when he was unresponsive, I yelled at the pigeon. Neither missed a beat in their divine state of togetherness.

Dravid eventually looked at me quizzically, his brows furrowing. "They are living things too. They are bound to crap. Why are you so upset?" I was at a complete loss.

I don't recall exactly what made Dravid's pets fly away eventually, but, mercifully, they did.

- Dabba

Selva in particular, and NWSF occupants of his time, had some of the strangest pets that I know of. One of them was called Gharpure. This Gharpure was a monitor lizard caught by Selva near Vihar lake behind H4. Monitor lizards are dangerous carnivores - too small to eat a human but aggressive enough to hurt one in the process of trying to do so. Only Selva knows how he caught this thing. He then spent one whole afternoon converting his chair into a cage for Gharpure by hammering a grill he stole from the Mech Engg workshop around the legs of the chair. That evening Gharpure was proudly on display as the newest pet of NWSF.

The next morning Gharpure was gone. It had broken through the grill with his claws and teeth. The reason it was called Gharpure? In Marathi the monitor lizard is called a ghorpad. To Selva's Malaysian ears that sounded

too close to poor Gharpure's name to give up the opportunity to call it Gharpure. (According to some other opinions, the man and the lizard even looked alike and had similar sharp claws but that is something Gharpure aka Chopper, the man didn't quite agree with.)

Then there was a time we all went to Naneghat and Selva caught a snake. Actually the snake was peacefully going about its busi-

After a few weeks the raft was ready and was christened SS H4Whore. Bhise, in a cap and undies – he didn't want to risk his clothes getting wet in case the raft sank – and a bunch of guys from H4 took the raft to Vihar lake.



ness when Selva stepped on it and tripped. The snake did not have much of a complaint about it but Selva did. For this brazen act of tripping Selva the snake was imprisoned in a bottle and brought to NWSF. The next morning saw Selva jumping around trying to catch flies, grasshoppers and earthworms to feed the snake. The snake however had a Gandhian gene in its DNA and had decided to go on a hunger strike to protest the gross injustice of being imprisoned for no fault of his. For three days our wing became a veritable zoo containing all manner of creatures Selva had caught that he thought the snake would find tempting. But to no avail. Finally Selva decided to let it go and released it in the jungle behind H4 (perhaps half hoping he will bite the Dhobi – more on that later).

And then after Selva's fame (about his pets) had spread far and wide a kingfisher (yes, a real live one) came seeking shelter in Selva's arms. Its wing was injured and it wasn't

flying very fluently. That whole week you would find Selva crooning to the Kingfisher nursing it back to health. He even negotiated a deal with a fisherwoman from YP (Y-Point) to come and deliver a fish (small just about as long as his index finger) to H4 every morning. Apparently, the fisherwoman didn't find the deal particularly lucrative and didn't come on the fifth day. The kingfisher decided he had taken enough advantage of Selva's hospitality and vanished the next morning.

Satkya

Some of our inventions were certainly illegitimate children of Mother Necessity, like the wax pass, or the devices produced because of the necessity to make phone calls in spite of dire poverty. But some were the result of our ever-restless brains, and a real desire to create.

Sandeep Bhise had this urge to follow in the footsteps of famous seafarers Columbus and Vasco da Gama, and circumnavigate the globe. But for starters he set a more modest goal: cross Vihar lake on a vessel made with his very own hands.

Many a night and drawing paper was consumed making ever more sophisticated designs of all manners of craft which would float on water. It was soon realized that acquiring the raw materials needed to convert these designs into reality would wipe out Bhise's net worth (at that time) several times over. But the intrepid adventurer in his heart found a way. He befriended the then Mess Secy and collected all the empty kerosene cans that were lying around the kitchen. There were about twenty. The next few days were spent gathering the construction materials – wires to tie the cans, beeswax to plug their openings to make them water proof, and so on.

After a few weeks the raft was ready and was

christened SS H4Whore. Bhise, in a cap and undies – he didn't want to risk his clothes getting wet in case the raft sank – and a bunch of guys from H4 took the raft to Vihar lake. A makeshift oar was hastily fashioned out of a piece of wood – everybody had forgotten we would need one to steer the raft.

Bhise mounted the H4Whore and off he went, surrounded by the bunch of guys swimming alongside. Wonder of wonders,

He stitched a pocket on the inside of his dazzling red skimpy bikini look-alike jocks.

He would put a one rupee coin and his room key in that pocket, walk in these trunks to the lake and dive into the cold crocodile infested waters.



the raft did not sink, and Bhise actually made it to the opposite end of the lake. The entourage made it too, in spite of the crocodiles of Vihar.

Satkya

Red Badge of Courage

Jetu narrated this story, bringing back vivid images to all present. It features an eccentric bawā from C83 named Cyrus Gazdar aka Coover. I know that “eccentric bawā” is a tautological statement much like hot sun or cold ice or four-legged dog. But this Coover guy was clearly over the hill, even for a bawā. So think of it as really saying something when we call him an eccentric bawā: he was an eccentric even among bawās. He tried to make a hang glider. We would see him carrying it back to the hostel in a mutilated condition after he had crashed it on some hill or other.

Back to Jetu's story. Coover was fond of swimming, and Vihar lake was his favourite pool. Coover was slim, fair and the most “chikna” bawā compared to others from his tribe like Sharookh, Irani, Kersi Dotiwala, Khushroo Lakdawala, Chikliwala, Rustom “quack” Sethna and Rustom Homi Sethna.

This chikna, eccentric bawā Cyrus Gazdar-Coover wore swimming trunks that were a dazzling red and skimpier than a bikini. One day, he heard that the authorities had begun to crack down on all illegal swimmers who treated Vihar lake as their pool. The cops would come, confiscate the swimmer's clothes if they lay on the bank, wait for the swimmer to come ashore, bundle him into their jeep, drive down to Andheri police station, and leave him there to find his way home. This was a really strong measure and scary enough to deter even the bravest. But not for nothing was this Coover known as Mr. Eccentric. His passion for swimming in Vihar was greater than the fear of even death penalty, leave alone something as petty as this. He stitched a pocket on the inside of his dazzling red skimpy bikini look-alike jocks. He would put a one rupee coin and his room key in that pocket, walk in these trunks to the lake and dive into the cold crocodile infested waters.

And did the inevitable happen? Yes, it did. There were no clothes to confiscate, but the cops were glad to sit beside a gora, chikna, skimpy red bikini-ed bawā who would be their companion from Vihar to Andheri, and it was with a heavy heart that they let him off at Andheri. And what did our intrepid friend do? Simple. He stood in a bus queue, boarded the 396 when it came, dug into the pocket of the skimpy, pulled out a coin and said casually to a flabbergasted conductor, “Ek Powai”. We can only imagine how the other bus passengers took this, but there

were several who espied him walking the two kilometres from the main gate back to H4, where he dug into the pocket of the skimpy yet again to retrieve his room key and finally disappeared from sight.

Jetu (Arun Jethmalani)

In the monsoon of '83, a baby crocodile (about a foot long) had strayed into H4 mess. May be it had become tired of the same diet of fish from the lake but, poor thing, it did not know that it was straying from the lake to a mere bucket! The mess workers caught it and decided to use a bucket as a temporary holding cell. But the croc was not too happy with his new cramped home. It snarled at every visitor and snapped at any hand foolish enough to try to touch it. Enthusiastic students tried to feed it on a diet of earthworms which got majestically rejected as a puny offering unworthy of the interest of a croc, even if a baby one. Finally it was decided to release the baby on the banks of Vihar lake. The surrogate parents watched anxiously while the baby lay on the banks bewildered or perhaps unable to believe its sudden stroke of good fortune. In the meanwhile kites had started circling overhead and the light was slowly starting to fade. Disheartened, as we got up to leave, the baby crocodile suddenly moved and, with nary a thank you, sprinted into the water and into the sunset never to be seen again. A happy ending worthy of a movie.

Satkya (Satish Joshi, EE, C'78)

Pol (Sanjay Pol, ME, C'82)

dabba- (Hemendra Godbole, EE, C'85)

Jetu (Arun Jethmalani, CE, C'83)

Purifying HIJKLMNO

Madhu Reddy

Water, water everywhere, but not a drop to drink!

At least, not a safe drop to drink. Isn't it pathetic that after 65 years of independence, many villages in India do not have a drinking water source? Many do have a source though. But the underground sources are contaminated with dissolved solids, fluoride, iron, arsenic, etc., and this results in bone and teeth deformation and joint pains for those who consume this water. The surface sources of water are contaminated with high levels of bacteria, harmful enough to infect the populace with waterborne diseases like Cholera, Typhoid, and Gastroenteritis.

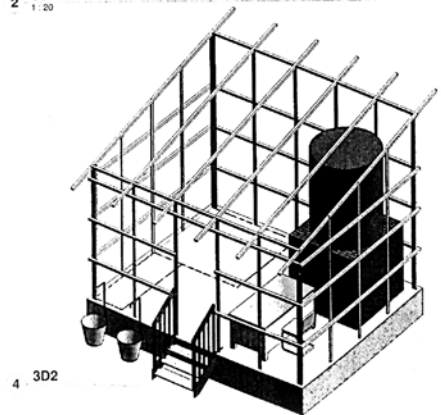
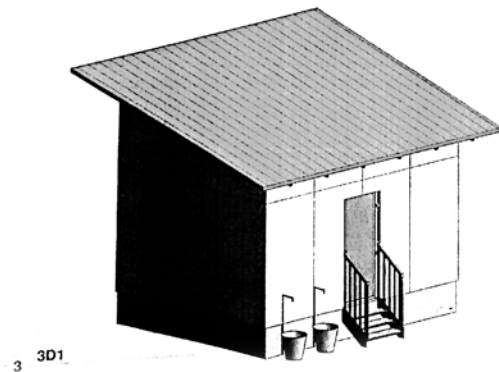
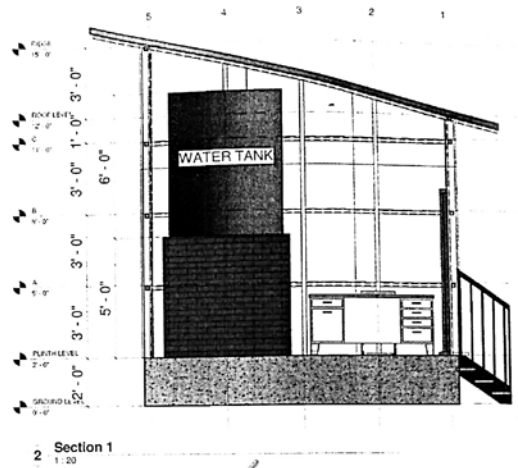
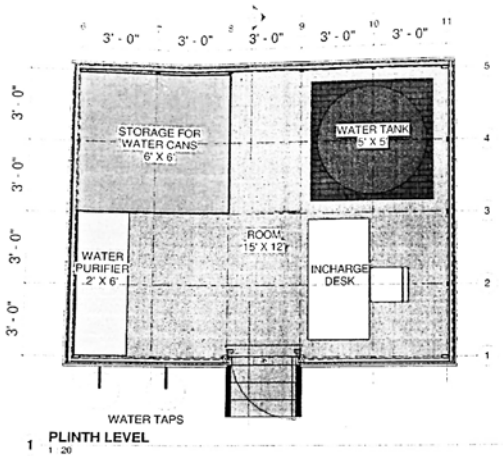
Most of the health outlay of governments is used for treating illnesses rather than preventing them. Though this problem is well known, much debated and lot of resources have been spent, the condition in rural areas has not improved. Take for instance, the state of Andhra Pradesh. In its affected districts of Nalgonda, Mahaboobnagar, Medak, Nizamabad, Ranga Reddy, Warangal, Khammam, Kurnool, Anantapur, Guntur, Prakasam, Krishna, Srikakulam, Godavari, Chittoor, Nellore, Kadapa, Vizag, etc., the fluoride levels are up to 10 mg/litre as against the tolerable levels of 1 mg/litre.

In order to tackle the problem effectively, some of us have decided to identify badly affected villages, especially those with high

fluoride and dissolved solids content in its water sources. We are also looking at villages where lack of sanitation and hygienic conditions results in water contamination with harmful bacteria. In this context, I would like to add that it is shameful to see rural men and women defecate in the open due to lack of adequate facilities.

We have planned to set up water purification plants based on RO and UV technology in badly affected areas, particularly those not attended to by any other agency. In order to make them successful, local bodies like grampanchayat and self help groups will be involved, local manpower will be trained to maintain the plant, and purified, potable, safe drinking water will be sold at a mere Rs 2 per 20-litre can and this money will be used for funding consumables and maintenance of the plant.

A 1500 litre per hour plant for a population of 5000 people costs about Rs 5 lakhs and we are approaching donors for these plants all over Andhra Pradesh. First ten such plants where donors have been found have been identified and installation will be completed in the next 30 days. The plant will be named after the donors. We plan to cover all the districts affected and areas not touched by any other agency and we want to complete this project in one year.



At the end, what we want to achieve is:

1. To provide safe drinking water in rural areas
2. To address sanitation and health issues of the rural population
3. To educate people on sanitation, health, water conservation and reuse.
4. To seek and find solutions to rural water and sanitation by identifying suitable and affordable technologies.
5. To create social entrepreneurs to generate rural employment, and
6. To train and impart skills in water management to local unemployed youth.

I will be donating for two plants and those who intend to donate may contact me at Madhusudan9@gmail.com.



Madhu Reddy
M.Sc. (Applied Geology) C'74

Madhu Reddy M.Sc. (Applied Geology) C'74 did his schooling in Madanapalle and graduated from University College, Tirupati before coming to IIT Bombay to join the Civil engineering department for a M.Sc in Applied Geology.

The Monkey's tail

Ashvin Iyengar

In a busy street in a busy town
 was a monkey playing the clown.
 Searching for something,
 it found – a broken butterfly's wing,
 a child carrying a slate,
 a teenager to meet his date,
 an officer waving to his wait,
 an old man in consolably sad
 his son did not turn out like his dad
 an old lady trying to borrow
 someone else's sorrow,
 a fair damsel whose name we shall not take,
 serious souls with something at stake-
 they all stepped on the monkey's tail.
 Didn't you hear them wail?
 It held its tail up in the air
 and a righteous bee stung it there.
 Broken of spirit, drained of jest,
 the monkey vanished into the forest.

Another monkey did what was bade
 which duly won him much accolade.
 He had his share of fun
 and he had his ambition.
 No be did dare no dog to bite,
 for e was a man by day, a monkey by nite.
 Still as far as prudence allow'd-
 the city was ugly, the city was loud
 something was missing and in quest
 the monkey rode to the forest.

When such monkeys get together,
they do not talk about the weather.
So they hung from trees,
they swung from trees,
flowers danced and leaves crackl'd,
as the monkeys pranced about unshackl'd.
One monkey recorded the music and the melody,
in the city it'd serve as a remedy.
Another tried but to fathom,
what lay beneath, what made the rhythm.
Could it listen to the music alone?
Could it feel the sun that shone?
the source of the spring could it find?
when it had left its heart behind?

And people came on a picnic spree
came and perched beneath the tree.
Sandwiches and cakes and farsaan too,
no dog to scare, no crow to shoo.
And they looked at them amused
and they looked at them confused
they laughed at them
they scoffed at them.
Do we have a problem brother
said the monkeys to one another
look at their faces look at their gall
then they are people after all
but children who'd rather monkeys be
why can't they be like you and me?

With what they found, for what they lack'd
the monkeys went to the city back
one monkey had a lot to do
for things had to fit into their groove
the other had to search the way
for that which'd gone astray.

Behold the city's pumping station
what human mind it cannot stun.
Lines going in and lines going out,
lines going straight and lines roundabout.
One line going up God knows where,
for angels fear where devils dare.
But what goes up has to come down
said the sage of the town.
You cannot have a pipeline free
you have to pay the Brahmin's fee
and the tomato sauce that flows thru
into your account must accrue.

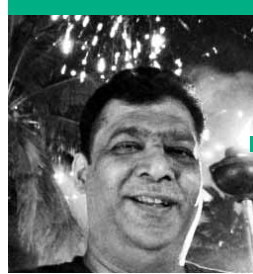
This tale perhaps will never end
monkeys their ways will never mend.
Still I have done what I could do.
The rest, amen is up to you
While walking on a crowded street
you have to step on each other's fee
you have to kick the donkeys that fail
but do you have to pull a monkey's tail?



The reluctant student

Ashvin Iyengar

Finally,
I am ready to learn-
Let the teachings flow.
Let them come in any form
or shape and size.
Let them come bring a smile
Let them come tear my heart apart
Let them come like ripples on a lake
or like a gigantic, tidal wave
or like a tide dying out.
Like light streaming through a window
or a door closing gently.
Like a song, painfully beautiful
or the primal scream of an infant.
Like friends rushing to greet me
or the sound of footsteps receding.
Finally,
the shell has cracked
just a little.



Ashvin Iyengar,
C82, EE, H4

Ashvin Iyengar, C82, EE, H4 was known as Fish because he drank like one. Had his passion and commitment that he exhibited in H4 (as a Councillor, mess-coordinator and G-Sec, followed by a stint as the GSSA), been utilised in the classroom, he could have completed his B.Tech in 4 years instead of the 6 years that it took. Among his many claims to fame that encompass yoga, meditation, a love for cats and volunteering for charities, is his propensity to laugh at himself while writing melancholic poems. Back in the early eighties, he wrote poems with borrowed jotter refill pens while smoking borrowed cigarettes. Now, he writes poems punched out on his own laptop while sipping his own coffee. Fish is also one of the major contributors in the Madhouse book. But more stories are written about him than by him.

Lil Nuggets - Lessons in Life *LetItBee*

The last Lil Nugget told us to 'Work like an ant so you can sing like a cricket'. The moral of that story was to move to wherever opportunities exist.

This is the story of the FundaRAT that aced the JEE and came to IIT. FundaRAT figured out how to negotiate and "pass through" the maze at IIT and "pass out" with flying colours. FundaRAT then got a job and became a CorpoRAT at a Desi Company. CorpoRAT toiled away, earning a fair amount of cheese and getting by in life. He lived a frugal life and stashed away more cheese than he consumed.

Over a period of years, his stack of cheese grew and the cheese itself acquired more cheese. Gradually, there came a time when his cheese was generating more new cheese than that generated by him working. He was not too happy in his current job and he confronted his BossRAT and told him off saying, "Don't treat me like I need this job". But things did not improve. So he put in his papers and took his family on a much delayed vacation.

Shortly after his return, he got in touch with a local Pied Piper who specialized in placing experienced CorpoRATs. Soon he found himself being sought after by many other companies wooing him to join them as a Big Cheese. He had a pick of jobs and was soon happy as a clam. One day, he met his batch-

mate who had just flown down from Silicon Valley. Soon they got down to discussing financial issues and Deshbandhu CorpoRAT mentioned how proud he was of his accumulated cheese and his new found job in which he was a Big Cheese. "Right On!" exclaimed the Phoren CorpoRAT, "what you did was accumulate FU Money." "FU Money? What is that?" asked the Deshbandhu CorpRAT. "Your FU Money allowed you to tell your Boss to FO and to take that job and shove it! FU Money gives you the freedom and the power to choose how you make your cheese."

The attitude of these fRATernity brothers and their purcheesing power cheesed off a few others. "Petty Capitalistic Pigs", they declared. When the fRAT brothers heard about it, they responded that these folks got it all wrong. They asserted that they were proud CapitoRATS and their goal was to provide opportunities for all to earn and accumulate their own cheese and not have it snatched away by the Socialist Pigs.

OK, LetItBee got a little political in this Lil Nugget. Nevertheless, the moral of the story is- for the first part of your professional life work hard and diligently to accumulate assets. At some point in your life, hopefully, the return on your assets will become significant enough and your assets will start working for you. At this juncture, you can hop off the work treadmill and do what you like on your own terms.

LetItBee invites questions from the readers of Fundamatics and will respond with sage advice. Send your dilemmas and questions to letitbee@iitbombay.org

C77, H5 and chick chack

Kumar (Speedy)

After moving through 7 Schools in 4 cities I landed at IIT Bombay in 1972 to experience 5 unique years in my life. When I talk to my son who now is a BTech student at IIT B, I can see that life at IITB still has some similarities, though the differences are also many.

Hostels and H5: From C77, 95 out of about 250 got into H5. The next highest population of C77 went to H4 and the others were spread out in H6, H7, and H8 with most foreign students in H3. H1, H2, and H9 were for PGs only and LH (H10) for females. Rooms in H4 and H5 were small in comparison to other Hostels. However it was one room per person unlike today. For us it is unbelievable how 2 people can share a room in H5 or H4 as they do today or for that matter in any other hostel.

Seniors and ragging: With 95 freshies in 1972, the seniors in H5 had a problem of plenty. Seniors would grab up to 5 freshies at a time for ragging sessions. Seniors from other Hostels would make forays into H5 to grab some freshies and take them to their hostels. One such ragging session that I remember is being taken to H8 by Jayant Kholgade. Ragging unlike today was never harsh or physical and sometimes it was fun. Another session in my room with a few other freshies was by Jamshed the gymnast and his friends one of whom was Lee Jee Ba, where my role was to sit inside the cupboard and

Another session in my room with a few other freshies was by Jamshed the gymnast and his friends one of whom was Lee Jee Ba, where my role was to sit inside the cupboard and every two minutes open the door and say “Cuckoo”.



every two minutes open the door and say “Cuckoo”. Not all seniors wanted you to strip, though there were some exceptions. H5 did have some scary seniors who we dreaded. Top of the list was Chandru Chainani followed by several others like Chaina, RR, Daffy, DG, Khandekar, Vikas Tipnis, and some more. These sessions were long and well attended by other seniors. There were scary seniors outside H5 too like Mazad. All of us from C77 must have gone through a bit of ragging though it is doubtful if any senior had the courage to rag Pappani or Tawakia !

Mess, mess duty, mess workers: H5 had two messes, Veg and Non-Veg, as did all hostels, while H3 had 3 messes. Our mess advance was Rs120/- per month and in the non-veg mess, chicken or mutton was served at least 4 days in a week. In those days, chicken was more expensive than mutton and thus reserved only for special occasions. Every

student had to perform “mess duty” by rotation. Mess duty implied that the person was given the kitchen store keys for the day and had to wake up at around 5am, open the kitchen store, and record the items taken for cooking by the mess workers. After breakfast, the items not used were to be put back and recorded. This procedure was repeated for Lunch, Tiffin, and Dinner. The student assigned to mess duty was exempt from classes as well as class tests on that day.

Rajan Shastri held a Playboy centre spread above the warden’s head during a hostel group photo, Colin helped organize the first Mood Indigo, and I organized several socials with the help of Ajit, and PK with lovely people from Sophia, Sophia Polytechnic, Nirmala Niketan, and University Settlement.



Inside the mess, it was not self service and food was served on the table directly by mess workers. Mess workers were mostly from Kerala. They were not Institute’s employees and were paid between Rs.40/- and Rs.60/- per month based on seniority! Mess workers were friendly and became a part of our life. I remember the silent Raman, the aggressive Varghese, Chacko, Kuttapan, Kutty, Jose, Mess manager Krishnan, Hall manger Balan, and assistant Madhavan distinctly for their untiring work and helpfulness. Most of the mess workers pulled themselves up by getting jobs in the Gulf whereas Madhavan Nair went on to become a Hall Manager and retired but is still doing a part time job in IITB. A year ago I managed to get Raman’s

number and called him. He must be touching 80 now and he wept when I called him, telling me that it was our humane and friendly behavior which made life bearable for them in IIT.

Hostel infrastructure: In 1972, H5 did not have a proper lounge and it was a group led by Vikas Tipnis who built a beautiful lounge working in the holidays. There was no TV and hostel funds limited to be able to buy anything. Slowly we built up the amenities like buying a Turn-table, an amp and speakers. We raised funds from Fetes as did other hostels. TV came much later.

Fetes: Every hostel held Fetes regularly. The Fetes had stalls for roulette wheel, card roulette, beer roulette, under 7 over seven, food, and finally Housie. Stalls were either auctioned by the hostel to students or run by the hostel itself. The surplus money generated went into funding the required hostel infrastructure.

Security: Those were the days my friends when security was not a big thing. Each hostel had one watchman (usually a Gorkha) who was assigned a room in the hostel to stay. Our own watchman Naval Singh was an endearing soul.

Faculty: We had only 6 departments for BTech Aero, Chemical, Civil, Mechanical, Metallurgical, and Electrical, though departments for Physics, Chemistry, and Mathematics also existed. As for faculty, there may not be much difference in what we have today and then. Some were great at lecturing in those days and I count professors JS Murthy (Physics), Shaligram (OrganicChemistry), JR Isaac (Programming) as exceptional. Further I enjoyed all classes of Prof BS Sanyal. On the other hand Electrical students had stories of two scary professors. For me Prof Narsimhan (Physics) was really scary !



Cartoons Courtesy: Hindustan Times

Canteens: Unlike today most canteens would shut by 10 p.m. and latest 11 p.m. and if you were hungry after that, you had to wait for breakfast the next day.

Contributions and chick chick : In H5, Vikas Tipnis helped build the lounge, Rajan Shastri held a Playboy centre spread above the warden's head during a hostel group photo, Colin helped organize the first Mood Indigo, and I organized several socials with the help of Ajit, and PK with lovely people from Sophia, Sophia Polytechnic, Nirmala Niketan, and University Settlement. After so many years I still rate Vikas Tipnis and Harsh Gupta as one of the finest artists that I have come across.

And generally: Hostels did not have laundry rooms or photocopiers. IITB did not have swimming pools. We learnt language ACE using a 2nd Generation behemoth which had 4kb core memory(RAM) and later moved to FORTRAN IV using EC 1030 which had 32kb core memory! Even then, I think we 5 year BTechs had time to stop and smell the flowers which the 4 year BTechs today don't seem to have time for.



Kumar Speedy
B.Tech.1977,Civil
Engineering

Kumar Speedy (B.Tech.1977,Civil Engineering) I haven't read CB's book and I cherish my memories of life at IITB. The exploits, encounters , episodes of people like Chainani , Myrtle , Colin , Uki , Mazad , Blasco , Bhende ,Bozo(H8), Pappani ,Awni , Ambrose,Anwar Bux , Animal , MDoll, DMell,Fats , Linus , Daffy, DG, RR, Marbs, Ouch, Mottey, KK, Animal,Birdie,Taru, Veeps, Warrior,Bore,Big Surd, Giddu,China,Doctor, Tawakia, Mansoor,VD and many others can produce a book of Micheneresque proportions. I wish I could write as good as George Higgins.

The day I caught fish in IIT

Makarand Karkare

The summer of 1979 was very happening. First, we did a Mumbai Goa cycle trip and then I went to Nagpur for my Mama's wedding. This was followed up by a gymnastics camp in IIT Gymkhana and finally, I did the basic mountaineering course at Nehru Institute of Mountaineering at Uttarkashi. This story happened during the gymnastics camp.

IIT Mumbai had a gymnastics team. I had managed to get into the group that year. I was not a member of the team, but had shown enough promise that I was invited for the camp during summer. Milind Gokhale aka Mali, Nitin Anturkar aka Dadhi and Sudhir Bapat aka Chepat, were confirmed members of the team. They were accomplished gymnasts and I was only a newbie. But they always treated me as an equal. The camp was quite tough. We were staying in the hostels and practicing in the mornings and evenings.

During the camp, the monsoon started and it rained heavily. Rain just poured for a whole day. Next morning, we went for practicing even as it was raining. There was huge amount of water logging in the gymkhana grounds. There were many locals moving around in the ground wading thru the water. I had no clue what they were doing, so asked Milind. Milind told me that they were catching fish!

We sat on the culvert with umbrellas upside down, very near the pipe. So some of the fish, who jumped too high fell into the inverted umbrella!



Catching fish on the gymkhana grounds? I couldn't believe my ears. How can there be fish on the ground? Where do they come from? I was full of questions and doubts. And Milind had all the answers.

The IIT campus is on the banks of Powai, a fresh water lake. It seems during the first rains, all fish start moving upstream through the water streams meeting the Powai lake. Some of them get trapped in the Gymkhana grounds and that's what the guys were catching. Then he was suddenly very excited and asked me if I wanted to catch fish. He told me about another novel way of catching fish.

Near hostel 9, there was a stream that met Powai lake. The stream went under the road through a culvert, similar to the one in the picture here. The pipe was about a foot above the stream level. If the fish had to go upstream from there, they had to jump up into the pipe and we could catch them when they jumped.

I was incredulous. I thought he was pulling my leg. But he dragged me to the culvert and



we could see that fish were indeed jumping into the pipe. The question was, how do we catch them? Milind was quite ready with the answer. He came back with two umbrellas. We sat on the culvert with umbrellas upside down, very near the pipe. So some of the fish, who jumped too high fell into the inverted umbrella!

It must have been quite a scene to see two young guys sitting on the culvert in pouring rain with their umbrellas not on their heads, but upside down, below them.

I will never forget that day.



**Makarand
Karkare**
B.Tech, ME, 1982

Makarand Karkare (B.Tech, Metallurgical Engineering, 1982,) Managing Director of Skyscape India Pvt limited, is a programmer at heart, but gets to do very little of it. One of the things that he would like to do is to get back to programming. One of his prominent traits is his gift of gab and a love for the written word. Makarand is an avid blogger and his blog called Makarand's Musings with thousand of visits so far is where he expounds on a variety of subjects including, cricket to personal philosophy to hiking to mundane day to day experiences. His blog is available at

<http://mkarkare.wordpress.com/>

A bovine Story

Anubhav Mangal

They say that Gandhiji changed the world with the help of a walking stick and a pinch of salt. I suppose I also did change certain things around me with the help of a hedgehog and a tinkly bell. Now I'm sure that most of you reading this are wondering if I am equating my doings with the enormity of what Gandhiji did. It is precisely this kind of thinking that I do not approve of. We homo-sapiens have this way of quickly jumping from one thing to another, when we should actually go through the whole road that connects the two events. The fellows at Nat Geo say that it has something to do with giving us an evolutionary edge, making us faster and helping us out when we were still similar to the chimpanzees in the Bombay zoo. I suppose they must be right. One really can't argue, they being the folks from Nat Geo after all. But I would like to say that there are certain instances where this evolutionary edge backfires in a most unacceptable manner. For instance, if you heard an account when a fellow human traveller of yours had to dive sideways into some prickly plants in order to avoid being run over by a cow, most of you would immediately place the blame on the one of bovine origin, saying stuff like "where has the world come to", and choose to sympathize with the old one almost in tears. Whether this is because of generally expected camaraderie between friends, or whether it's a simple bias favouring one's

own species – I do not know. However, it will be my endeavour that after reading this simple account you will no longer be inclined to make such approximations without the presence of adequate data and some careful analysis.

I was recently taking a walk along the gymkhana, wondering about the declination of the earth and how it would affect the climate and the environment of this hallowed institute. When I ran into a bunch of bovines having a low-down in the middle of the street. Not one to be easily intimidated by a few cows with large appendages growing on their heads, frequently used for impaling anything that crosses them, I steeled forward through the mass of cows. However, I was stopped short due to the presence of another young 'un blocking my path. I was just preparing to circumvent this obstacle to my objective when I noticed a rather large bull with a pair of nicely curved horns chiselled almost to the point of being as thin as the tip of an atomic force microscope. He was giving me one of those suspicious looks one gives to another when the other is trying to pinch the Rasgulla off ones plate while attempting to be fairly covert about it. However, there being an absence of those little white delights in the immediate vicinity, I looked for another explanation as to this hostility towards me. That was when I noticed a large scar on the top of the aforementioned bulls right eye, and

a memory from my formation years in IIT hit me with the force of a Mag-Lev train from China. Blood boiled through my veins as I remembered that event, and I shall daresay that had there been any eye witness during this occurrence they would have seen some steam escape out of my aural cavities.

It was back in my freshman year when I was still full of the vigour that only youth brings with it. I was just returning from running around the athletics track about twenty-two times under the tutelage of my athletics coach. A strapping fellow with the biceps the size of my neck, but otherwise a cheery fellow always inclined to see the proverbial sunny side of the street. Anyway, after a fairly gruelling run around I wished to return to the warm embrace of my bed and wisp away into a nice dream involving ice-cream and no locomotion. However, on returning I found my room door open, which I always leave shut. This is partially due to my aversion to mosquitos and partially due to my having very little faith in the integrity of my fellow men. In order to capture the miscreant behind this dastardly act, I approached the door with guile that would make the best ninjas from China growl with jealousy. When I jumped into the room, with surety that I had the element of surprise, I saw myself staring at an enormous bovine chomping on my lab manual. Judging by the mess, he was done with experiments 1 and 2 and had moved onto 3.

Small scale wars with these four footed panzer tanks are commonplace in a place such as IIT-Bombay. One of my closest friends once told me about an episode when during a monsoon season he was navigating through the death trap known as the infinite corridor; renowned for its slipperiness during the monsoon. If there was a scale for slipperiness like the Mohr scale for hardness, the corridor would be silicon carbide. Number

one would undoubtedly be the wet bathroom floor on a cold winter morning, known for being the leading inanimate killer of human beings in the average household. During this struggle of his to evade seeing the big man up above, a bull decided that my dearest friend, who in my opinion still had not reached the prime of his life, needed to be rammed with as much force as possible. Letting out a huge moo that cracked the spectacles of my beloved friend, inducing another handicap

When I jumped into the room, with surety that I had the element of surprise, I saw myself staring at an enormous bovine chomping on my lab manual. Judging by the mess, he was done with experiments 1 and 2 and had moved onto 3.



in the form of his faltering vision, it charged forward, horns lowered at supersonic speeds. My friend claims that it was only his superior human reflexes, developed through centuries of natural selection, that saved him (the same evolution mentioned in paragraph 1, championed by the fellows at Nat Geo), as he dived sideways into a bunch of plants.

Now that I have explained my exposition a bit, let me explain my initial hypothesis. Upon hearing these series of unfortunate events I took it upon myself to conduct a little investigation of my own. Using covert and somewhat shady tactics, I managed to triangulate the positions of the persons that had the potential of being eye-witnesses to this incident. Upon interrogation, where I took another accomplice-in-arms in case the witnesses were uncooperative and we needed to play the good-cop bad-cop routine, it was revealed that 90% of witnesses believed that



Image Credit ,The Raintree Issue 2

the cow had in fact slipped on the rank 9 slippery surface. The moo was in fact a plea for help and the charge towards my friend was the general motion all those of organic origin undergo when trying to regain their balance. It was further revealed that the cow's general trajectory was not towards the coordinates of my friend. Extrapolation of the trajectory would have revealed that the cow would have missed my friend by a fair margin. It was the human need for exaggeration that had forced my friend to make such erroneous statements that were so damaging to the reputation of the cow, an already highly misunderstood creature in this great institute of higher learning.

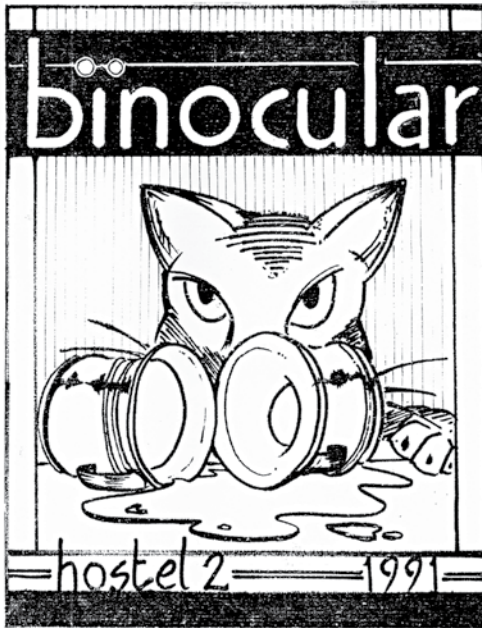
My point here in this lengthy essay is that, it is wrong to jump to a hasty conclusion, even though we are allegedly wired to do it. It is also wrong to put blind faith in our fellow men, as revealed in this cow incident or the recent financial crisis. Therefore one must always perform research and analysis, like I so astutely performed in this case, before arriving at a decision.

PS – I would have played the bad cop, for obvious reasons.

Anubhav Mangal

Anubhav Mangal is currently a third year student at the department of Metallurgical Engineering and Materials Sciences (MEMS) at IIT Bombay. He likes writing in his spare time and does occasional freelance work for newspapers. His other interests include reading, debating and economics. He also harbours a keen interest in Materials Sciences.

Hostel Magazines Revisited



The wonderful world of IITB hostel magazines is an universe unto itself. It highlights the creativeness of its denizens and to go over them is to bring back the warm fuzzies once more. These hostel magazines have played a seminal role in creating and shaping innumerable would be poets and writers poets, writers and we would like to build a repository of all old issues of IITB's hostel magazines and showcase them for you. Stumblebee came upon a few of them and we are making a start with 'Binoc' and 'FourWord' enjoy...

Stumblebee



One of these days

But, soon, the room's black, and you've hit the sack.

O' bliss, as the Great Healer, Sleep, takes over,
And you greet the next day, sweeter and sunnier.

(From Binoc 1991)

-- Prashanth Mundkur

O, the days are plenty, born sweet and sunny,
Only to be stained by test papers, grades and an nbd:

The red pen merciless has gone on a rampage reckless
That leaves your scarce but neat dignity in shreds.

Even the best laid plans (so you thought) do sometimes come to nought
And, quiz after quiz, you still get a zot.
And all the while, the other guys confidently smile
And you fall behind them, mile after long mile.

So, you sit thee, very morose, and not very verbose,
You scribble some verses and disregard prose.

The dapper man there, with powerful lung,
holds forth with glib tongue
You wonder here whether your own rhymes will ever be sung.

Later, in your untidy hole, you still listen to rock 'n' roll,
And slowly, to the Devil, you sell your soul.

You may urge yourself; 'Man, you 've gotta crack'

{A classic case of how the Elec dept. can make people switch to verse-Eds.}

This is what Prasanth's bio stated in Binoc in those years: "Mundi" is called the "pape" boy of the hostel because of his penchant for publishing papers. A lit cat, he was the lit sec of the hostel in his second year, after which he went into hibernation and has appeared only sporadically. Has been known to write a poem a lecture ever since he has come in touch with 'Apte' bai in the Controls course. His creative instincts have been given a fillip by some of the not-so-interesting lectures in the dept. Provided the only competition to Hegde when he started a designer label called "Wear and Tear". Very absent minded, he can be found either in the Elec dept or near UBD's house. El Dorado awaits him. We hope he found his El Dorado.

Hello World!

(From FourWord 2001)

Entries from the On-the-Spot Creative Writing Competition of the Main GC – 2000-01: This year, for the first time in the Main GC an On-the-Spot Creative Writing Competition occurred. The topic for this years competition was: #INCLUDE “STDIO, II” VOID MAIN () { PRINTF (“HELLO WORLD”);}

Here is the first one written by Nips (Deeparnab)

(Hello World)
of times it has been tried to be put on page

Interesting cuse given by Mr. Charles Babbage
None, till date, knows exactly how and why
Computer programming is difficult, why it makes us cry?
Listless we wonder
Until we come to know
Dealings of Babbage with an
Englishman named Jo

|| “Hello, Mr. Babbage, with numbers do you like to play?”

Vainly asked Jo, he thought he'd have fun
Only he didn't know, what Babbage really had
In his little grey cells, he was a little bit mad

Desperately he worked
Marred by none
Aroused by the moonlight
Inspired by the sun
Never did he rest till the gadget was made
(even the Gods had to bow, it is often said)
) is a right parenthesis, he said and (is a left
{is a curly brace oh I am deft

Poor Mr. Babbage
Realized with sudden fear
In spite of his best efforts
Never was the end very near
Too much was the workload, tired was he
Flushed away of all his joy, bereft of all his
glee

(people say that day by day he was dying bit
by bit)
“My dear friends; I took a project, and
couldn't complete it”

Heavy was his heart
Estranged was his soul
Life was not fair at all
Lowly and foul
One fine day, this old man, woke to breathe
his last

While dying but, over the world, a curse did
he cast
Only if Babbage had completed his dream
machine
Running programs would have been as easy
as drinking gin
L 'as! It was not to be! destiny had a different
card
Debugging takes a major time, programming
is really hard

|| each 'if must precede an 'else'
} must have its pair
; must end each legal line
} without a {?? ... O ... do you really dare

Comments on FDI in Retail

Sharad Kumar Saraf

Part of the pleasure of carrying opinionate pieces on contentious issues is to evoke reaction and encourage debate. Edit meetings of fundabees are replete with them. For long we have been trying to evoke a similar reaction from our readers but to no avail! With Sudheen's article on FDI in retail we seem to have pay dirt. We want our readers to be engaged and involved and have no special viewpoint on any issue. We printed his column on the hope that it would evoke comment and were delighted to discover that it did. Please do not stop now that you have started. Bouquets and brickbats are equally welcome.

Grumblebee

The views expressed by Sudheendra Kulkarni in his article “Red Tape for TSMEs, Red Carpet for FTA” appearing in the last quarter issue of FUNDAMATICS appear to be coloured by the BJP thought process.

First let me consider the points made by Sudheen. The government has never professed that only foreigners coming and investing in infrastructure is the solution to the infra problem. FDI does not prevent our own players to continue with their investment plans. In fact, it may spur their otherwise lethargic attitude in investment in infrastructure. The government has not proposed any special policy incentives or deals for the foreigners. On the other hand, there are more

I had created a very tiny industry starting in 1972, which has now grown into a mid-sized corporate with a turnover of approximately Rs. 600 Cr. in a span of about 40 years and have gone through the entire cycle of Tiny, Small, and Medium Enterprise. I can say from my experience that there is no red carpet treatment given to big business and they too are subjected to the same hassles or red tape.



conditions and hurdles on their way which the Indians do not have. More on this a little later. In fact, what is proposed is a complementary (distinct from secondary) role by the FDI players.

Sudheen subsequently diverts to TSME versus big business policies of the government. Of course, this has nothing to do with FDI. However, TSME and big business have basically the same basic policy of structure. On the other hand the government tilt towards TSME is clear from the fact that they have a dedicated Ministry of Small and

Medium Enterprises, wherein there are large number of programmes and policies specifically for the benefit of MSME (+TSME). This information can be seen on the website of MSME which includes various policy initiatives including grants and financial supports,

I had created a very tiny industry starting in 1972, which has now grown into a mid-sized corporate with a turnover of approximately

The experiment of FDI in retail has been studied in other developing countries like China, Brazil, Mexico, Thailand, etc., wherein it has been observed that all the stake holders in retail including TSME, farmers, food processing industry, logistics, etc. gained immensely by having more players.



Rs. 600 Cr. in a span of about 40 years and have gone through the entire cycle of Tiny, Small, and Medium Enterprise. I can say from my experience that there is no red carpet treatment given to big business and they too are subjected to the same hassles or red tape. Again from my experience as office bearer of various important trade organizations, I can say that most of the government policies are not dictated by the PR agency or lobbies but are outcome of studied reports and lengthy discussions. Of course, there could be an exception which cannot be ruled out.

I do not agree that Prime Minister and his advisors have created an impression that foreign investors are the ally and well-wishers of Indian Kisans and consumers nor do they claim that only foreign investors

can solve our problems. The government wants to speed up our economy and shore up the returns to the farmer and complete the supply chain as fast as it could. This can only be done by massive investment which our own corporate sector or the government at present lacks. Hardworking farmers and TSMEs are at present far apart from each other with huge cost generating / adding links in between.

Having touched upon most of the points raised by Sudheen, let me now add a few important policy facts of FDI in retail.

Instead of “red carpet”, the government has imposed several important and interesting conditions on FDI.

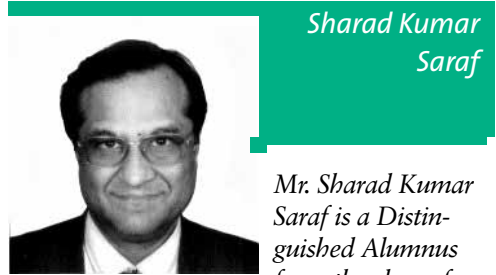
1. FDI party needs to have minimum investment of \$ 100 million. This means only large and established players will get an entry, who will necessarily have to bring them with professional management systems and economy of scale.
2. 50% of FDI will have to be in backward infrastructure which at present is absolutely low in capacity and volume. At the present domestic rate of investments, it will take decades before we reach anywhere. The backward infrastructure so created will be a great asset to our rural sector.
3. At least 30% of procurement will have to be done from TSME. This is a direct benefit to TSME and will create a large pool of Entrepreneurs.
4. Retail sales outlets under FDI may be set up only in cities with a population of more than 1 Mn. They will only be able to cater to 40% of the Indian population which resides in such cities. The balance 60% will be beyond the reach of FDI players. This will protect the tiny sector who are

scattered in tier III cities.

5. Government will have the first right of procurement of agricultural products. This will prevent the FDI from undercutting the prices or disturbing the market.
6. The State Governments and Union Territories are free to take their own decision in relation to implementation of policy. At present there are only 11 out of 35 States and UTs that have approved FDI in retail. This will give a good experimental period to show the benefits or the disadvantages of FDI in retail. If any disadvantages in these States are seen, no other State would give approval and even in these States the investor will lose his shirt.

The experiment of FDI in retail has been studied in other developing countries like China, Brazil, Mexico, Thailand, etc., where in it has been observed that all the stakeholders in retail including TSME, farmers, food processing industry, logistics, etc. gained immensely by having more players.

The present objections to FDI in retail are similar to those who objected to FDI when the government opened up in early 90s. The then Prime Minister P.V. Narasimha Rao had to announce from the ramparts of Lala Quila that foreign investors who come and create industry and employment cannot pick up and walk away with the industries and jobs so created. The results are for all to see. Let us not object simply for the sake of opposition.



Mr. Sharad Kumar Saraf is a Distinguished Alumnus from the class of 1969. He is the Managing Director, Executive Director of Technocraft Industries India Limited. He is the President of Confederation of Exporting Units (CEU), Chairman (WR) of Federation of Indian Export Organisations (FIEO), was Vice Chairman - Engineering Export Promotion Council and is associated as Member of Custom Advisory Committee, Indian Merchant Chamber, Bombay Chamber of Commerce & Industry, World Trade Centre, Mumbai, and Managing Committee Member of Engineering Export Promotion Council of India. He has been a keen observer and activists representing the different industry groups.

In Response to Sudheen

This is in response to “Red-tape for TSMEs, Red carpet for FDI” by Sudheendra Kulkarni. In summary Sudheendra’s analysis/argument appears to be:

7. India should be self-reliant
8. FDI is not a solution to India’s problems
9. TSMEs form a significant part of the economy
10. TSMEs can be innovative and compete effectively
11. While announcing a new policy for FDI in retail the Prime Minister did not mention/support TSMEs thus belittling them. Furthermore he implied that problems in retail have arisen and persisted because of a lack of FDI in the sector

Problems that need to be addressed, at every level – individual, group, enterprise, national – have two aspects: (1) the responsibility for solving the problems, (2) effective solutions for the problems. For the first of these, clearly one has to be self-reliant, i.e. it is the responsibility of the entity facing the problem to solve it. For the second self-reliance is not necessarily effective. Thus if I fall sick, it is my responsibility to heal/cure myself but the answer is not necessarily to enrol in medical college or build a hospital! There is an implicit implication in the notion of self-reliance championed by Sudheendra (and the BJP)

There is an implicit implication in the notion of self-reliance championed by Sudheendra (and the BJP) that solutions developed by Indians are better than solutions developed by foreigners. It escapes me as to how the theories of gravitation or relativity would have been “better” if Newton and Einstein had been Indian.



that solutions developed by Indians are better than solutions developed by foreigners. It escapes me as to how the theories of gravitation or relativity would have been “better” if Newton and Einstein had been Indian. When PM Atal Bihari Vajpayee needed his knees replaced an American doctor was flown in to attend to it at taxpayers’ expense by the BJP government. So much for self-reliance.

Sudheendra’s position, it seems to me, is that Foreign Direct Investment is bad by definition. Nowhere in the article does he provide any evidence that FDI is harmful. When I look at the India around me I find that India has gained enormously from FDI. When I was at IIT there were mainly two types of cars available in India – Ambassadors

and Premiers. Both were manufactured by Indian companies. Both were awful - poorly engineered, fuel guzzling, and highly polluting. Today the scene is vastly different, the cars available in India are as good as cars anywhere in the world. In this highly competitive market open to car makers from all over the world, Indian car makers – Mahindra and Tata Motors for example – are holding their own and thriving. At the same time I don't think that the stakeholders in the foreign car makers – customers, employees, vendors, distributors, shareholders, the surrounding communities, governments at different levels, etc. – are being systematically cheated and exploited. Granted that this is anecdotal evidence and the plural of anecdote is not data.

Nevertheless one can conclude that FDI is not always malevolent. The more pernicious consequence of the notion of self-reliance and the anti-FDI attitude championed by Sudheendra is that it isolates India from the community of nations to its own detriment.

In regard to TSMEs I agree with Sudheendra's observations that "They face red-tape, harassment and even regular extortion at almost every interface with the government." And that TSMEs can be highly innovative and compete effectively. In the 1950s or 60s the then equivalent of a finance minister (I don't know his formal title) of Hong Kong, incidentally a Scotsman, elucidated two guiding principles: (1) money will go where it knows it is free to leave at any time, and (2) there is nothing that the government knows better than the free market to enable it to decide which enterprises should succeed and which should fail. Perhaps similar policies in India will help the economy far more than any government sponsored grand designs.

With respect to Sudheendra's imputations to the PM's remarks that he has quoted I am at

a loss. The PM makes no mention of TSMEs. How does that lead to the conclusion that he does not support TSMEs? In his remarks the PM has identified a problem of storage and transit losses. Nowhere has he said however "... that the problem has arisen and persisted because of the absence of FDI in retail ..." as Sudheendra claims. In any event the cause of the problem is not particularly relevant – the past cannot be changed – in developing a solution. "Building new warehouses, cold-storages, and modern transport systems", as the PM suggests, certainly seems to be part of the solution.

Dhananjay Saheba



*Dhananjay
Saheba
B.Tech. '77, EE*

Dhananjay Saheba (B.Tech. '77, EE) started his career in telecom with Bell Labs. In 2000, he joined Hughes Telecom as the CTO and subsequently became a part of the Tatas. In 2008 he founded iJunxion, a company focused on value-added telecom services.

Global Consortium Makes More Progress toward Addressing Clean Energy Access Challenges

Broadens Educational Opportunities around the World

Global leaders gathered in Mumbai Dec. 6-12 at the Fourth Annual McDonnell Academy Global Energy and Environmental Partnership (MAGEEP) Symposium aiming to identify fresh, sustainable solutions for the 3 billion people living in developing countries who lack access to clean energy.

The event, co-hosted by Washington University in St. Louis, the Indian Institute of Technology Bombay and Tata Institute of Social Sciences, addressed the realities of inadequate energy access among rural populations, and sustainable solutions to meet these energy needs. In a continuation of efforts that began four years ago, the symposium drew to a successful close – launching four new and important initiatives:

- **Global CONCERN**- Researchers from Washington University in St. Louis, the University of Queensland in Brisbane, Australia, Tsinghua University in Beijing, China and the Indian Institute of Technology Bombay will work collaboratively to address the environmental challenges from the use of coal. In addition to joint research and development programs, partners plan to share unique facilities, including the Advanced Coal and Energy Research Facility at Washington University, and potentially develop an advanced technology park near Mumbai.

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- **SERIIUS**—the Solar Energy Research Institute for India and the United States- A \$62 million venture jointly funded by Government of India and the U.S. Department of Energy (\$25 million split between the two governments) and global corporations (\$37 million), SERIIUS was created to advance solar technology research with the goal of lowering the cost of implementation. SERIIUS will also develop education and training programs to help the deployment of solar technology in rural India.
- **Joint Executive MBA program**- Washington University in St. Louis and IIT Bombay intend to offer an Executive Masters of Business Administration, targeting middle- and senior-level executives in India. The new program, a first-of-its kind in India

where students may earn MBA degrees from two leading institutions, will develop deeper managerial, leadership, and critical knowledge among rising executives.

- **MAGEEP Educational Network-** Students from the 28 MAGEEP partner institutions now will have access to innovative educational opportunities and internships around the world that focus on major issues such as air quality, energy-water nexus, solar energy

Students from the 28 MAGEEP partner institutions now will have access to innovative educational opportunities and internships around the world that focus on major issues such as air quality, energy-water nexus, solar energy and energy storage, and energy and environmental technology.



and energy storage, and energy and environmental technology. The opportunities, developed through the MAGEEP network, include partnerships with corporations and governments.

“Global problems such as energy poverty cannot be solved by an individual researcher or a single institution,” says Washington University in St. Louis Chancellor Mark S. Wrighton.

“Solutions to those problems can only happen through global partnerships. MAGEEP, bringing together 28 leading universities and corporate partners, is working to improve quality of life around the world. We have the opportunity to make a meaningful and sustainable difference by coming together, learning from each other, and exploring and delivering workable solu-



tions. With the results we've had already and the outcomes of our time together this week, we already are seeing progress."

For additional information on the MAGEEP Symposium, including agenda and speaker details, visit <http://mageep.wustl.edu/symposium2012/Program.aspx>



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Ezz bee

"I'm hot!" he exclaimed.

"You are always hot!" she replied coyly.

"No! Not like that! I am hot on the outside and I am burning in the inside. I have all these bottled up feelings raging in me and I need to let it all out." he said.

-955497687 "Oh, so you feel like throwing your usual fit? Go ahead let it all out." she replied.

-955497687 "You don't mind?" he asked.

-955497687 "Never have, for all these years I have known you, somethings never change. I am as close to you as I want to be and as far as I need to be. I can deal with your occasional tantrums".

He let himself go and roared and put himself through all kinds of contortions and motions. "Ooh, that felt so good!" he shouted.

"I felt it too," she said, "I am tingling all over and did you see me light up?"

-955497686 "How are the children?", he asked.

-955497686 "Oh same o same o," she complained, "they are constantly misbehaving. They never pick up after themselves, they are thrashing the place, the sibling rivalry has become extreme, they are constantly fighting amongst themselves, they get tired of their existing toys and acquire newer and bigger

toys. I have whacked them a couple of times, but they don't seem to get it. I am concerned, they are hurting themselves."

"That is so sad," he consoled, "we had so much hope vested in them. They could have been so happy. What did we do wrong?"

"We gave them too much independence and freedom and they misused it. Off late they have been talking of leaving home! How stupid of them. They can barely take care of themselves here".

"And how are you doing my dear?" he asked.

"Oh, I just shake my head, I will survive no matter what, even though what they are doing is eating my insides. It is them that I am worried about. I am not sure they will make it. I often wonder if we will outlast them."

"So true," he said, "We are not going to last for ever. We can't keep providing for them. They have to determine whether they want to utilize our benevolence wisely and be happy or be sad."

"I know," she sighed, "I have decided, when you go, I will go too".

"Till death do us apart," they chanted in unison.

"I love you Mother Earth" said the Sun.

"I love you too, Papa Sun," said Mother Earth.

The Moon looked on wistfully. "I wonder how long it will be before these brats start molesting me. They can't seem to leave me alone."

Manu Smriti v 2.0



If RK Laxman were to reinvent his common man, he would probably caricature Manohar Parrikar, rather than his current LK Advani lookalike. Most aam amongst all aadmis. More mango than the rest. Always dressed casually in a half-sleeved shirt hanging out, simple trousers, and sandals. Wears the same whether he is in office or addressing a mammoth crowd or hosting a UN delegation or entertaining international guests. Does not hide the fact that he still smokes, while being honest enough to admit that it is wrong. Does not hide his beer glass from perpetually clicking cameras. As a man he is common, as a Chief Minister, he is not. That's probably why he was voted as CNN-IBN's Indian of the year 2012 in the politician category. His is a profession that attracts commen, not common men. Goa celebrated the award conferred on the eve of his 57th birthday and hailed him as "Singham" who will clean up Goa.

Team IITBAA and Team Fundamatics spent time with Manu on 28th, 29th, 30th November as well as on 1st December. Thanks to his continuing engagement with the alumni community, as many as 22 business proposals are under consideration for a tie-up between alumni and the Government of Goa. Thanks again to his good offices, Fundabees had a field day at the International Film Festival of India (IFFI) interviewing award winning film makers, watching

thought provoking films, and wining and dining with star studded glitterati atop Fort Reis Magos on a moonlit night.

During the course of our various interactions with Manu that spanned at least 7 hours in all, at various locations - on the lawns of Goa International Centre, at the CM's official bungalow, at the hangar in Kala Academy, in a boat ride to the Fort, over a frothing beer at the Fort, in his modest Innova, and even at 2 different weddings that we attended along with him - we captured several soundbytes that show how extremely common he is. We believe that some of these need to be immortalised as current day Manu Smritis, with due respect to the sage who pronounced laws for mankind in a different era. What we reproduce here are not serious doctrines or views. In fact, they are snippets from lighter conversations, laced with humour, shared with different groups including Shah Rukh Khan and Jackie Shroff. Some of Manu's alumni friends were called upon to corroborate and expand further on some of these anecdotes during their narration.

Little wonder then that guest after guest, from Mira Nair to Anjali Patil (best actress award recipient) walked upto Manu and said, "Sir, thank you for an excellent festival and all arrangements. But our best experience has been to meet a Chief Minister like you. We still cannot believe that a person like you can exist and succeed in politics."

Noseybee

Referring to the proposal of setting up a Playboy Club in Goa, Manu recounted his conversation with some journalists. Apparently, he told them, "I will not stop Playboy. After all, we survived 5 years in our hostel, thanks to Playboy."

~

When a man walked up to greet Manu on



the lawns of the Goa International Centre, Manu introduced him to us with this line. “He is the Income Tax Commissioner. Everyone is scared of him. That’s why you see him alone. But I’m the only man in Goa who is not scared of him.”

~

After seeing off Shah Rukh Khan, Manu walked back alone to rejoin us. When he was asked where his security guard was, he replied. “What security guard? I don’t need any security. That guard you saw was Shah Rukh Khan’s. I don’t know why he needs security. I certainly don’t.”

~

Replying to a question about why he moves around in Goa without a retinue of cars and security, Manu replied: “The other day, I got an invitation from a villager to have dinner with him. I went to his village and his family was pleased. But, after 2 days, he called me to say that while he was happy I went, he was sad that no one in his village noticed that I was at his place. You know that I travel silently without pilot cars, escort cars, and blaring sirens. In fact, I had driven there myself. But after his complaint, I have changed that. Whenever I get an invitation from any villager, I make it a point to take a pilot car with a loud siren that blares ‘pee pom, pee pom’ and has flashing lal batti.”

~

While observing that black hair dye made Ashvin Iyengar look younger, Manu also mentioned how much he abhors any hair dye. He added, “I am one of the few Chief Ministers who does not dye his hair. One day, I was at the barber and I had dozed off. The enthusiastic barber ended up dyeing my moustache. I woke up in time before he could mess with my hair. For many days, people asked me how come I had grey hair and a shining black moustache. I am still waiting for my mouche to become normal and grey.”

~

The CM’s banquet on the Fort was a great event and most of the guests seemed to be enjoying their drinks and dinner immensely. Sensing that it would get late, Manu turned towards Krishnamurthy (the Information secretary of Goa and IFFI organiser) and said, “Krishnamurthy! It is 1 A.M. and time to wind up the party. Start asking the guests to leave. Be polite but firm. But if a person tells you that he is an IIT alumnus, let him stay. IITans love to party and they will not listen to you anyway.”

~

Everyone wanted to have their photos clicked with Manu. Paresh Vora volunteered to do the honours. After 3 attempts, when Paresh’s hand continued to shake, Manu remarked with some irritation, “This Paresh Vora is a gujju who does not drink. That’s why his hand shakes when he clicks a photo.” He then turned to his son Utpal and said, “Utpal! Please take the camera from Paresh and you click the photo.”

~

On a request to recount the story that many of us had heard earlier from some Goan residents, Manu recollected this. “During my last tenure as CM, I was awakened by a call on New Year’s Eve that there was a major traffic jam and there was no cop in sight.

My son drove me to the spot and I then took over as a traffic constable and successfully cleared the jam within half an hour.”

~

On our earnest plea, Manu narrated this story to Jackie Shroff, Manoj Joshi, Shreyas Talpade and a few other actors. “We IITans have a knack of walking through airports and any venue with a confident look and nobody stops us. But I was stopped at Mumbai airport in 2002 when I was the CM though I tried to walk through confidently. I then announced that I was the CM of Goa and that my protocol officer was waiting inside with my boarding pass. But the constable would still not allow me. When asked why, he said, “I just saw you getting out of an auto-rickshaw carrying your own bag. How can I believe that you are a CM?”

~

The closing ceremony of IFFI was a gala affair with almost 3,500 attendees. Many of us had managed to enter the compound of the Kala Academy but about 12 of us were stopped by security guards manning the VIP entrance to the air-conditioned hangar. To our delight, we saw Manu walking in at the same time. He looked at us and then instructed the guards, “Let these people go in. They are my guests.” He then turned back to us and said, “You guys should be like Bakul. He walked in so confidently, that no one stopped him. In fact, some chaps even saluted him. Tum log ghiss marna bhool gaye kya?”

~

Sanchita Rodriguez (Manu’s press liaison officer, confidante and an important part of the CMO) shared this with us. “I was driving when I got a call from the honourable CM. I was speaking while I was driving and the cops stopped me and fined me Rs. 900 although they knew who I was. I am going to seek reimbursement from the CM.” When

we laughed and relayed this to Manu, his reply was instantaneous, “I will definitely reimburse her. I should have checked with her before I started speaking to her. Fault is mine, not hers.”

~

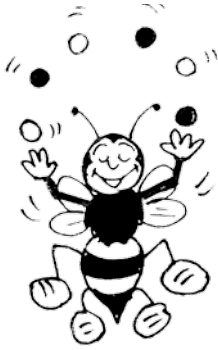
Every alumnus who took a cab to the CM’s official residence for the business proposals meeting had a unique tale about his/her conversation with the cabbie. Not only did every taxi driver know the CM’s residence, they all had words of praise for Manu. When Rajiv Verma asked the cabbie to hurry up since he had an appointment with the CM, this cabbie retorted, “So what if you have an appointment? Anyone in Goa can meet him without an appointment. I met him just 3 days ago. If you have a problem with security, let me know. I will take you straight up to the CM’s room.”

~

Manu was listening attentively to an entrepreneur who was being made to run around from department to department for over two years without his project making any headway. He suddenly reached out into his drawer, fished out a book and said, “Nowadays, I do all my reading on the pot. I came across something very interesting. See this diagram. (while pointing to a diagram of a mobius strip from the book) This is a typical case with all governments. You can go on and on in circles without reaching anywhere.”

~

While discussing his travel plans, Manu remarked, “Normally, I don’t go to temples. But I am going to Tirupati on the 22nd. I will ask God there if he can give me a small part of that temple’s revenue for Goa and show me how to earn similar revenues for Goa.”



We have met the enemy and they are us!

Ezzbee

This was surely the curious case of being at the right place at the right time.

To receive an invitation to attend the International Film Festival at Goa and to be the honourable Chief Minister's guest at the premiere of the screening of *The Reluctant Fundamentalist*. Apart from the novelty of being at a red carpet event and all the beautiful people gathered there (a first for us), like diligent do-bees we also decided to attend Mira Nair's press conference and review the film for *Fundamatics*.

This was not a movie viewed from the peanut gallery, clutching our own tub of popcorn. Before the film, I did have a lurking fear at the back of my mind that this might be yet another "Clash of Civilisations" type movie with the same master narratives, but told from the other side of the fence. Thankfully it was nothing that ham-handed.

Adapted by William Wheeler, 'The Reluctant Fundamentalist' is based on the bestseller of the same name by Pakistani author Mohsin Hamid. Made with financing from the Doha Film Institute in Qatar, the film offers a very different perspective on the "war on terror" than that found in most Western features and documentaries on the subject. It looks at the relationship between the East and the West, their perception of each other, and how that translates into how they react when their worlds collide. It is a commentary on funda-



mentalism -- whether it's terrorist ideals or capitalist ideals emanating from the Boardroom.

Cultivated, restrained, yet barbed and passionate, the film is a story of Changez Khan, brilliantly played by Riz Ahmad, and is acutely Dostoevskyan. The film opens with Changez as a firebrand lecturer at a Lahore university who is suspected by the CIA of having a hand in the kidnapping of an American professor in Pakistan. An investigative journalist, Bobby Lincoln, played by a very intense Liev Schreiber, tracks him down in the hopes of getting to the truth. The story unfolds in a series of conversations and flashbacks between these two characters. It has all the makings of a well paced crime thriller and the tension



remains taut throughout as suspicious questions develop concerning both men's identities -- is Changez a dangerous Muslim radical? Is Lincoln an undercover CIA operative? Their multi-layered relationship, as the plot slowly reveals, changes dynamics and the audience is left guessing who to really root for.

Changez's story seems to gush from him like blood from a wound, tracing the self's shifting sense of itself against the rumblings of a rudely shaken world. The flashbacks recount his rise from an Ivy League darling to a Wall Street analyst, who thrives under the care of his tough-love mentor (an extremely effective Kiefer Sutherland), travelling the world ruthlessly helping companies to maximise profits by cutting "unnecessary fat". The plot also reveals how Changez falls for a dark-haired photographer-artiste type, Erica (Kate Hudson), a photographer still mourning the death of her previous lover. This is a period that highlights young Changez's fleeting intoxication and growing disillusionment with the American Dream after 9/11 hits.

Mira Nair in her earlier films like 'Mississippi Masala' and 'The Namesake' has amply demonstrated that she has a gift for revealing the challenges and contradictions of the American minority experience. Conflict comes from within as well as without, as Changez finds himself the victim of racial profiling in the U.S. and something of a black sheep back in Pakistan, where he returns to inspire the

youth but where his ideals are bombarded by the East's perceived notion of the West, which he knows so well but has become disillusioned with.

The performances are generally strong. The film is all about Riz Ahmed who is very effective at showing both Changez's enthusiastic early embrace of the all-American lifestyle and his growing disillusionment with Western values. He seems equally at ease in a New

Changez's story seems to gush from him like blood from a wound, tracing the self's shifting sense of itself against the rumblings of a rudely shaken world.



York office as well as in a Lahore tea house. Sutherland is striking, too, as his hard-driving, macho boss. One of the weaker elements is Changez's romance with Erica; Kate Hudson dispiritingly wan under a dark curtain of Very Serious Hair seems badly miscast as the intense, grief-stricken heroine. Nair struggles to blend the love story with the political elements. Her light subtle touches from the Monsoon Wedding, The Namesake, or Mississippi Masala seem to be missing here. It is not enough that Erica has to find her own inadvertent prejudices excavated by their subtly diverging reactions to New York in crisis; she has to stage an implausibly tone-deaf exhibition titled "I Had A Pakistani," complete with exhortations to "throw on a burqa." More of a cliché than an actual character, Erica seems to represent too-convenient a symbol of a nation that superficially opens her arms to Changez but ultimately rejects him once 9/11 hits.

Having said that, some scenes are acts of courage in themselves. There's a genuinely jolting

moment when Changez confesses a detached admiration for the terrorist attacks on the US: "The ruthlessness of the act," he says in conversation with Bobby, "was surpassed only by its genius."

Shimit Amin pointed out at the press conference that "It is really ridiculous that we look to the West for validation be it in the technical aspects or in terms of validation through awards like the Oscars. In the last 4-5 years

There's a genuinely jolting moment when Changez confesses a detached admiration for the terrorist attacks on the US: "The ruthlessness of the act," he says in conversation with Bobby, "was surpassed only by its genius."



it has taken on absurd proportions ". We felt quite proud of his achievements as the editing was reasonably fluid and coherent despite the story's inherent jumpiness across time and space.

Mira herself pointed out, "Modern Pakistani music has special strength and power to it," and the music in the film is one of its strong points - vibrant, flowing and ever-present - blending the two worlds seamlessly in Michael Andrews' funk-based score with traditional Pakistani Qawwali tunes and a number of Urdu poems recited in song. Atif Aslam and Misha Shafi were sublime in the raw power and poignancy. Intentionally or not, Declan Quinn's widescreen lensing imposes an unmistakable binary reading on the story, contrasting the warm, enveloping hues of Lahore with the soulless corporate interiors of New York.

We asked Mira to explain her directorial voice that exists in the interstices of the film. And she shared in her customary candid fashion: "the elegant mind games of the novel spoke to me and being someone who has inhabited both worlds (the East and the West) and come to understand them intimately, this film sprang from a real desire to speak from the other side. Living in America you see so many movies where American soldiers are portrayed as noble souls fighting for freedom in a foreign land. But you never come across a story about the person on whom the bomb was dropped or the names of the Iraqi women who lost their families in the name of freedom and democracy. This is something that burns me up. What was special about the story of Reluctant Fundamentalist is that it is not just a story that portrays our side of the story to the world but it is also an attempt at a genuine dialogue where it become clear that there is no real 'other' so to speak. What binds us is our basic humanity which is the link between both of us. That is the bridge that I seek to build through this film. It is a non sentimental unflinching look that has within it love, anguish and nuance and the politics of the time".

Some film reviewers may find such a humanist angle a bit too old-school liberal for their taste. But we have no problems with it. Our recommendation to the reader, - go watch it. It is a fascinating and haunting film that succeeds in also creating an unsettling dialogue with the spectator. It leaves so much room for argument and also renders to us our complicity, forcing us to reassess our own positions and actively talk back, unable to retreat into our own national borders with its own complacent certainties.

As Mira herself said "the reaction from the audience is my Oscars", We hope she gets this one.



SYGMOID: Symposium for Gains in Markets over Induced Diets

The Hostel 7 Alumni yahoo group is perhaps one of the most active hostel e-mail groups. Anything and everything under the sun comes up for discussion – sometimes serious, often ridiculous; just like the cack-sessions at H7's Marine Drive. Here's a sampling – nonsensical yet hilarious banter between Raghu Murtugude, Anil Gandhi, and Harish Badami.

Jumblebee

Dear Vodafoner,

There has been a serious misunderstanding and it is unfair to call my approach as a Ponzi scheme. Charles Ponzi had the intention to defraud people whereas no such mala fide intent has been proven in my approach. We have a history of at least 5,000 years where we have learned with meticulous gathering of data, calculations, validations, and perturbation experiments that every human carries chemicals that are secreted at a certain rate depending on the push and pull of the planets and stars and their gravity whether it is at a micro scale or a macro scale. Since each of us have a finite mass, we ourselves affect the gravitational pull on others and affect their behavior also. As you can imagine as a defunct chemical engineer, the rates of secretion and defecation of chemicals is partially set when you are born depending on the universe's configuration at that precise moment and the place of your birth and the

micro-gravitational pull of the people around you, the parents being the closest ones near you.

While the western world argues whether there was a Big Bang and whether there will be a Big Crunch, we know that all these arguments amount to Shunya - because the Universe is an unending cycle. Having these calculations all massively paralyzed on my Apple computer, I am in a very powerful position to understand the push and pull at individual and group levels and make selections for investing their material wealth according to their own gravitational aura. I know which planet is quincunx with which planet and who is retrograde and who is on the ascendant and what the moon is planning for 29.5 days.

While it hurts me to be branded as a fraud, my own chart says that I am headed to Goa to run some big institute where people will come to learn my method and soon I will include the dark matter and the dark energies which are acting more forcefully on the western hemisphere and include these in my calculations to transfer the wealth down the gravity gradients back to the eastern hemisphere. My writings will issue specific instructions to my followers; these will not be static but will constantly adjust to the micro-gravitational aura of the individual, no matter where he migrates and allow him

to constantly track the currency and make continuous adjustments to his portfolio to maintain optimal health and wealth without running like a mad man for miles and miles. Whether you accept my Prasad or not, my blessings will always follow you like a fatwah.

Be blessed,

Gurudeo Persaud
Born Guddra

While the western world argues whether there was a Big Bang and whether there will be a Big Crunch, we know that all these arguments amount to Shunya - because the Universe is an unending cycle.



Prof. Guddra,

I have followed your writings with interest for quite some time now. I stand in awe at your fundamental research that has advanced the frontiers of investment science and puts you in league with financial heavy weights like Merton and Scholes. In particular, I urge reference to your theorem of lunarcy which ties lunar movements to financial fortunes.

But if I may, I would like you to consider one other movement that could change your math quite significantly. Perhaps you would like to consider bowel movements as an additional predictor in your calculations. As a defunct Aeronauty engineer, you might recall that the lift of an object worthy of flight is intricately dependent on the drag queen. To the extent that bowel movements (or lack thereof) can put a drag on a day and to the extent it counters the micro-gravitational lunartic pull of hot blondes in the vicinity of an investor, it appears to me that your theo-

rem of lunarcy is valid in moonless conditions and less so when people are mooning around. A constipated moonless night is a sad day for investors.

Prof. Guddra, we would be delighted to have you as a speaker at a symposium that I am chairing – Symposium for Gains in Markets over Induced Diets (SYGMOID). At the SYGMOID symposium you might find welcome company in derivatives theorists, proctologists, and dental hygienists. I urge you from the bottom of my amygdala to accept this invitation and we look forward to seeing you at the symposium. Feel free to give us a call and our assistant, Bare Bottoms, can help you find suitable accommodations.

Best Regards,

Investor

Dear Investor,

I am aware of your inventions such as the Levitassan which have shaken the free market of the silent majority and left them speechless on the issues of protecting minority stakeholders. It is really heartening to see you move into the SYGMOID at a time when the land of Aristotle and Plato is so broke that they are Breaking My Window (BMW) down to learn my lunar system to move away from the Aryans. I do value your suggestion of including the bowel movements into my system. As you may have already read in my dictates to the most fanatic followers, when the full moon occurs twice in one month every 2.73 years, my Blue Moon investment option is released to the top Six SYGMOIDs based entirely on the flax in their diets. My system focuses on the metabolic energy dedicated to the bowel movements during such months to ensure that sufficient energy is available to the thermodynamically limited axons in the brain so that the six SYGMOIDs can clearly distinguish

the past from the present and prepare themselves for the future with properly balanced silent partners with majority and minority investments.

I will attend your symposium with Six Highly Important Random Arbitrage Zombies (SHIRAZ) so that I am fully protected from street demonstrators who tend to connect their feet with the end of bowels in an act of lunarcy.

Sincerely,
Prof. Guddra

Prof. Guddra,

It is a delight to hear back from you and may I heartily offer an advance welcome to the symposium. On a separate but related note, it has come to my attention through a flax eating fanatic of yours that you are in search of The Divine Truth. Which is great, because, as it would so happen, we are having a hackathon at the Church of the Holy Door Knob, during the weekend following the symposium. Of course, only those with a high amygdalic quotient are invited and so if you can spare some time, we would love to have you there as well.

I think you will enjoy our hackathon where our search algorithms, looking for traces of divinity, dig through mountains of Big Data that describe everything from the Big Bang to the Big Crunch and everything in between such as the Big Guns and the Big "hmmm... you must be glad to see me". Last year our "Holier than Thou" prize was won by a young guy who was able to discover the fair value price of Divine Truth.

The winner usually gets a door (knob) prize and a free pass into heaven or a chance to be reborn as a potato who can lounge around on a divine couch. Interestingly, more recently, we have seen winners choose the

potato option and shy away from heaven, after the seminal paper that showed heaven is hotter than hell. The bottom 10 losers whose algorithms do not converge get a colonoscopy. Perhaps you would like to judge this competition and grace the occasion with your insights. Consider this your flax finding trip.

Best Regards,
Lowly Investor

The winner usually gets a door (knob) prize and a free pass into heaven or a chance to be reborn as a potato who can lounge around on a divine couch.



Prof. Gurudeo Persaud,

With all due respect Sir, I am disappointed that an eminent scholar and scientist like you is not only claiming cheap credit for unintended puns, but is also still stuck with some outdated Newtonian concepts. Gravity is no longer a force to be reckoned with; it's just a simple distortion of space-time now. My amygdala (infact, my entire brain) at birth was made of such dense dark grey matter, that gravity bent around it and created a warped mind. Maybe because I am a Biggs Moron and not a Higgs Boson, my interaction with the universal field is undetectable. I cannot therefore agree that planets should be classified as retrograde or investment-grade. And though you're right about the circular nature of the Big-Bang to Big Crunch cycle, the solution is not necessarily always trivial. My general model in fact predicts that in a financial Crunch, the biggest Bang for the buck can be had by looking instead at the second order differential of this closed loop function, to avoid any points of discontinuity

there (also called points of no return).

And finally, I suggest a variation of the Schroedinger's Cat experiment. Put a certain sum of money inside a piggy bank, wait and observe. According to quantum theory of superposition, your investment could simultaneously both grow or disappear over time, depending on probability of market events, and your real returns depend on how periodically you keep opening and checking. You

Gravity is no longer a force to be reckoned with; it's just a simple distortion of space-time now. My amygdala (infact, my entire brain) at birth was made of such dense dark grey matter, that gravity bent around it and created a warped mind.



can either tell how much money is made, or where it is - but never both at the same time.

As for Gandhi's alternate theory and (bare) bottom fishing investment strategy, looks like he went to the wrong page of Guddupedia - and has digressed from the astronomical to the gastronomical?

Vodafoner

Dear Voda Foner,

While I am in agreement with your thesis for the most part, I am sure you will allow me the luxury to correct a minor mistake in your assessment.

Sadly, I must confess my deficit in skills relating to meditative and levitative arts has handicapped me lately in financial markets, with returns that are south of shunya. In Newtonian terms, that is. But you must excuse the grey haired old fashioned guy in

me who likes to see apples fall from trees once in a while... on my head.

Add to all this, my inability to deflect gravitational force fields around me, as all Blackberry users with Vodafone service can, has left me no choice but to attain financial nirvana through alternate means. Such as gastronomy. Which, as a defunct chemical engineer, you may know, is the close cousin of Astronomy.

In fact I am remiss and late in publishing this work, but generating useless banter has consumed my time, you must understand. If your schedule permits, perhaps you would like to glance a peek at the special January issue of the Journal of Hot Chillies, Hot Markets, and Hot Babes in which I detail the Newtonian connection between "who the fuck cares about markets?" and Hot Chillies.

The essence of my work indicates that thai chillies, habanero peppers, and serrano peppers are the gateways to eternal financial freedom. The shunya in market returns is balanced by the infinity of thai chillies and habanero peppers. It is the yin with the yang, chow with the mein, and garam with the masala. The inspiration in my work lies with Prof Guddra, who, while testing chakli on us thirty years ago discovered that certain gastronomical stimuli create perfect conditions for uninvited visitors to leave.

But I do wonder about the question - if the market went down more than 2% in a day, and there is no one to hear the market fall, did the market really tank?

Best Regards,

Lowly Investor

The Vodafoner and the Lowly Investor have set me back 30 years with the mention of chakli!! My poor progenitors are now old and can barely walk. The male progeni-

tor has almost realized that he never had oxytocin secretion and his dopamine receptors were mutated but we only know that because he had no education and cannot control his demons. So he cannot go on and on about how many things are wrong with the world based on the opinions of Arun Shourie or the prophet. The female progenitor who made those gastronomic delights - chakli and coconut burphies - can barely walk but smiles like there is no tomorrow. She went 28 days without a morsel of food except for a cup of coffee each morning. All kids and grandkids joked that she broke Anna Hazare's record but she gave no reason for not consuming any gastronomic delights other than that it was too hot so she didn't feel hungry!

Markets go up and markets go down. Higgs Boson may give mass to everything and gravity may bend space and time around you or may even bend your mind. Despite all the serious astronomical and gastronomic digressions sprinkled with satanic verses and Aurangzeb's attar, I hope everybody has had some good times in life and has managed to stop and smell Akbar's roses.

The inexorable march of life waits for nobody. So be sure to find that bright spot - something that's working despite all that is wrong with the world. Duplicate the bright spots. Otherwise, it will be a dark life.

I just had two glasses of the 7 Deadly Zins. Not bad

G



*Raghu (Guddu)
Murtugude*

*Raghu (Guddu)
Murtugude
wandered through
the wilderness after*

IIT and ended up as an accidental tourist at the University of Maryland in climate sciences. Now he tries to do some good with his time since life offered up opportunities without any hard work.



Anil Gandhi

*Anil Gandhi is a
data scientist and
an entrepreneur.*

His current interests include using data to predict the future of using data to predict the future. In his spare time he data mines to improve performance metrics in semiconductor and other manufacturing. You can admire his work by e-mailing to him at mindrate@gmail.com



Harish Badami

*After IITB and
IIMC, Badami has
helped set up and
lead the Indian*

operations for a couple of different chemical MNCs. But even after 25+ years, like the proverbial chicken, he still wonders when and why he crossed the street - he lives with his family in Hiranandani Gardens Powai.

National Society for Clean Cities, Pune

A Profile

Satish Khot

National Society for Clean Cities, Pune is a 33 year old non-funded, completely voluntary NGO which, as the apex body of all the Mohalla Committees, Parisar Samitis, Residents Associations in Pune, takes up issues concerning the Environment and the Governance of Pune city. We work at empowering the citizens to get involved in their neighbourhood, their city, their state, their country and their planet. Our activities through these years reflect our commitment and endeavour to influence and achieve positive change towards our credo: *Pune, a Clean City – Clean in Every Which Way.*

Citizens participation in their own governance is the keystone of NSCC's efforts and a true expression of Democracy..

Some of the initiatives & activities taken up by NSCC, Pune have been:

Involvement of Citizens in their own Governance

On the last Thursday of every month, the Ward Officer with all his senior officers meet the Mohalla Committee members and work at resolving issues which bedevil them. Issues which are not resolved are taken on the monthly meeting of the NSCC in PMC head office. These meeting are chaired by the President of NSCC and the Municipal Commissioner and other senior officers are asked to address citizens problems on various issues..

Solid Waste Management

We have made a sustained effort to bring about a transformation in the citizens of Pune as well as in PMC's approach towards solid waste management. NSCC have been pioneers in building awareness of the need for garbage segregation and composting at source. On the 1st Saturday of every month NSCC holds its Sanitation Committee meeting. Here NSCC members meet the Jt Municipal Commissioner, SWM, all the Ward Officers, Divisional Medical Officers, Sanitary Inspectors etc. of the PMC sanitation Department. This is to discuss policy for Solid waste Management and to review its implementation. This has been met with great success in that State Ministers, Municipal Commissioners, and others from all over the country come to Pune to study how the city handles its SWM..

Green Development Plan

NSCC led the fight for preserving the Green Development Plan for the 23 fringe villages of Pune. We collected over 70,000 signature opposing the converting the area into a concrete jungle. The Expert Committee set up by the Government of Maharashtra have completely supported our view and have recommended that preserving the Bio Diversity Park is essential for the Pune Municipal Corporation..

Citizens' Participation in PMC Budget

At the behest of NSCC, PMC agreed to commence Citizens Participation in the PMC Budget process. For the last 6 years citizens are now involved in budget making for their wards as well as for their city. PMC allocates funds for a special Citizens Budget which comprises suggestions from Pune-kars..

Encroachments and Hawkers Zones

NSCC has been working to preserve all open

spaces in Pune. It has been agitating against encroachments on the footpaths as well as bringing to the attention of PMC the misuse of residential, basements and parking areas in the city. It has been working with PMC to get them to implement a hawkers' policy and allocate and build Hawkers' Zones in each Prabhag..

Preserving the Green Environment

As the green cover in Pune has been shrinking due to indiscriminate construction, NSCC's mohalla committees have been organising tree plantations in their areas. NSCC also has a continuing campaign of No to Plastic Bags to prevent their rampant use..

Cleaning the River, Nullahs & Odhas

The rivers, nullahs and odhas are ignored by the PMC and citizens dump waste in them. NSCC keeps a watchful eye on indiscriminate dumping of rubble in the river. Its mohalla committees have been conducting campaigns for cleaning the river by regular involvement of Pune-kars..

Traffic & Transportation

NSCC members interact with Pune Police's Traffic Department on a regular basis.. The Traffic Commissioner regularly attends NSCC's monthly meeting to address problems not resolved at the Ward Office level..

NSCC members also interact with the Traffic Department of the PMC and make suggestions on traffic issues eg Parking, Pedestrian issues, etc. Even Transportation issues like bus routes, stops, frequency are taken up.. Presently discussions are being held regarding the Bus rapid Transit System being introduced on some cross city routes..

Preserving Lakes

NSCC has been in the forefront of saving water bodies in Pune from destruction.

The Model Colony Lake has been made a picturesque site after over a decade of litigations and protests. It is now trying to prevent the Dhanori Lake from being filled up with rubble and have a commercial site built on its 27 acre surface..

Citizen Election Watch

A Citizen Election Watch was spearheaded by NSCC 5 years ago and details of all candidates were made public. On the basis of this information, all the mohalla committees organised platforms for voters to meet and discuss with their candidates. Further, NSCC has been conducting voter registration drives for many years..

And there are many more initiatives taken up by NSCC, Pune and its members..

In fact, NSCC has been the voice of Pune's citizens as well as its conscience..



Satish Khot

Satish Khot is a graduate of two of India's premier institutions. He is a chemical engineer from IIT, Bombay and an MBA from IIM, Calcutta. He has worked for some reputed companies in India. His last job was as Chief of an Indo-American joint venture company manufacturing oil field chemicals. Satish has always been very active in civic issues. For the past seven years he is President of the National Society for Clean Cities, Pune which is the apex body of all the mohalla committees in Pune. NSCC has its credo to be "Pune, A Clean City – Clean in Every Which Way". He is also on the Advisory Council of Public Concern for Governance Trust.

Second birthday, 26th May

Vasant Limaye was the leader of Kalabaland expedition organised by the Mountaineering Club of IIT, Bombay. A near fatal encounter with an avalanche on the summit day left him shaken. Down but not out, he continued to lead the team members after a few days to other successful attempts. This is a first person account from 1982 and in many ways relevant even today.

Bumblebee

Time 1930 hrs, 6th June 1982. A quiet evening had settled in at Camp II. Members were snugly cooped up in the warm sleeping bags. A light wind was fluttering, playing with the tent flaps and hushed conversations were taking place in the adjoining tent, while waiting for the slumber to take over. I was tossing around in the sleeping bag. The mercury must have dropped down to minus twenty (degree celsius). I remembered 26th May and shuddered in the warmth of the sleeping bag.

Almost a month ago we had set out from Bombay - a team consisting of 10 students of the Indian Institute of Technology, Bombay, two alumni and a doctor. I was one of the alumni leading the team.

This was the Kalabaland Glacier Expedition. Kalabaland glacier lies on the east of the Milam glacier, in the Pithoragarh district of the Kumaon Himalaya, Munsiyari being



Towards Advance Base Camp.

the nearest roadhead. The head of the glacier offers various summits with a common Advance Base Camp (ABC), so it was chosen with the objective of attempting multiple peaks with altitudes ranging from 19,000 to 22,000 feet.

The weather had been a problem right from the start - heavy snowing on the approach march itself put us a week behind schedule. Inclement weather after reaching Base Camp(BC) caused further delays. Hence it was understandable that after leaving Munsi-

yari, District Pithoragarh, the last road head, on the 7th of May we could establish BC (13500') only on the 19th. Our main camp, however, was ABC, well on the Kalabaland Glacier at 15500'. Crossing the Sankalpa glacier where the BC was, over to the Kalabaland glacier, we finally established ABC. As we got onto the latter, the sight that greeted us was unbelievable. The landmarks we had familiarized ourselves with during slide shows of an earlier expedition slowly came

We did not know what hit us! The block hit the tent square, tapping DQ's waist, missing Crack in the middle, and landing on the lower side before coming to a halt. . . its crushing weight on my chest. The tent was shattered.



into view. The pyramidal Sui Tilla lay behind us as Burphu Dhura and Suli Top flanking the Kalabaland icefall revealed themselves for the first time.

From ABC, the expedition started as we moved up in pairs. Eight members of the team and I went up first to establish Camp I(16500 feet) just at the start of the icefall and Camp II(17800 feet) above it. In a way the bad weather had been a blessing in disguise - it made tackling the icefall much easier. Very few of the crevasses required fixing of rope, as most of them were hardly as wide as they were deep. Eventually Camp III (19200 feet) was established on top of the icefall.

Simultaneously, action began on Burphu Dhura. Vora and Amit did a recce-cum-ferry to this mountain and selected a site for the first camp. A few days later, on 24th May,

Vora, Amit and I set off for an alpine style attempt of Burphu Dhura. This was a virgin peak of 20,160 feet. We made good progress on the first day and set up Camp I at 17000 feet. Early on 25th, we started around 0630 hours, toiling up the eastern flank of Burphu Dhura on a 65-degree gradient over an icy slope. With heavy sacks the progress was slow; after every 20 steps one had to rest on the ice axe to catch one's breath. We were climbing between two avalanche gullies and roaring avalanches had provided deadly background music since morning. A hurried lunch of biscuits, dry fruits and snacks was a quick reprieve. We had been climbing for almost eight hours by then. The weather had been clear since morning and we wanted to make the most of it since the next camp site was still a couple of hours away. Clouds from the south, from the valley below had been ascending along with us and were now above and ahead as a portent reminder of their power to render our climb powerless. We continued with the ascent.

Then the bad weather spell caught up with us. A light snowfall began and a light wind started blowing. We were making slow progress and continued with the climb. As the intensity increased with the winds howling at a speed of 50-60 km/hour and heavy snowfall together plummeting the temperature drastically we were forced to abort our ascent. We were still about 400 feet short of the plateau above, where we had planned to set up the last camp before making the summit attempt the next day. Visibility had reduced to barely 15 feet. Pushed into camping much earlier than expected at a relatively less secure spot, we started digging out a small ledge to pitch the tent on the steep icy slope. The effort was stupendous. With numb hands and stinging ice and snow particles blinding us, we persevered in feverish haste, stopping only to ease the panting and regain

some strength. Eventually, we managed to gouge out a tiny ledge. Pitching our small 3 man tunnel tent on it turned out to be a bigger struggle – holding the flapping tent down in the roaring winds and hammering in the ice-pitons (Anchors) to secure it drew on our last reserves of strength.

In the final analysis the width of our efforts was not enough and about eight inches of the tent was hanging over the edge. We thrust our sacks on the lower side of the slope to support it from below, crawled inside the tent and got a brew going. The tent door was on the Northern side, but the view was limited. The peaks at the head of Kalabaland glacier had disappeared in the white-out. We were watching the floating snowflakes with heavy hearts and praying for good weather for the next morning.

It was decided that Crack (Shrikrishna Karkare's pseudonym) will get the Tea going by 0400 hrs and the other two lazy souls will get ready by 0500 hrs. DQ(Rahul Vora, as he was fondly called) was on the mountain side, Crack in the center and I was sleeping on the outer edge, oblivious to the steep Western flank below me. On 26th morning, Crack stumbled out of the sleeping bag to be greeted with heavy snowing. We decided to wait for the weather to improve and Crack soon slithered back into the sleeping bag to some more dozing. DQ and I were still cocooned in our sleeping bags. Around 0745 we heard a big grumble somewhere above; piercing the roaring winds it penetrated our consciousness akin to a warning signal. By now we were used to this music and completely disregarding what was happening outside, each of us slid further into the closed and private world of our cocoons.

An ice block weighing about a ton had got dislodged from the slopes 400 feet above and was tumbling down with a big crack-

ing noise. The infernal noise increased as it hurtled down towards us driving us further into our pleasurable thoughts. We did not know what hit us! The block hit the tent square, tapping DQ's waist, missing Crack in the middle, and landing on the lower side before coming to a halt. . .its crushing weight on my chest. The tent was shattered.

I was jolted awake to an awareness of an impending tragic situation – of being pinned down under a crushing weight.....of the short and desperate gasps of breath ...of the body trying to stay alive. And then the ambit of awareness expanded.... the emotional and the mental faculties quickly and forcibly began to prevail over the mechanical and logical functioning of the physical being. Life was dear... too dear to let go. I shouted for help. There was no reply. I continued to shout. Each time getting more difficult ...the crushing weight making each breath shorter and the voice waning.

DQ and Crack had been freed from the folds of the tent and were by now standing in the oncoming snowfall, dazed. In a couple of minutes they were able to gather their wits and hearing my shouts rushed to my rescue. They dug the snow clear from my chest, pushed over the monstrous ice block and I breathed a little easy. We were shaken and in a state of panic. There was no point in collecting the rest of the gear; we barely packed our sleeping bags and some essentials. The boot laces were iced up and I had to cut them with my Swiss Knife, so that I could wear them. The danger of more avalanches was hanging over our heads. We stumbled down the slopes in great haste. The slope on which we had struggled for eight hours, we zoomed down the same slope in barely 12 minutes and crossed the avalanched gully to a safe ground.

We were lucky that the block had not come

sliding down, because then it would have completely erased us and I would not have been writing this! Even as it had accumulated mass on its rapid downhill descent, its speed got reduced because of the fresh snowfall since the previous evening.

We fearfully looked up and started our laborious journey towards ABC. The members at ABC had heard the great rumble and were worried stiff. When they watched the three dots moving, they breathed a sigh of relief. DQ had received a thump on his hip and was limping. Crack's goggles which were hanging on the tent pole were crushed, but he being in the middle was untouched otherwise. I was complaining of chest pain and coughing. Crack being fittest led the way down. Once while coughing I spat on the snow and watched with dread at the blood that I had thrown up. I was convinced that a rib had broken. Even though it was a near white-out condition, Crack painfully suffered with early stages of snow-blindness that night. After a medical checkup later that night, the Doctor discovered that while cutting the boot laces, I must have cut my finger and sucked the blood instinctively. What I spat out was probably the same blood. There was no broken rib after all. We had a good laugh. 26th May I was indeed Reborn!

It had been a narrow escape. We spent the next couple of days recuperating. I was shaken up and it would take me some time to get out of it. It was now important to support the rest of the attempts happening from the higher camps. One encounters failures and it is demoralizing. But it is important to leave that behind and get on with the next challenge at hand, and it does need courage.

As the snow came down steadily, our spirits fell almost as fast as the temperature. Date was 7th June. We were in Camp II to wind up and return. Bad weather, with just about

five days of climbing left above Advance Base Camp (ABC), could mean the failure of the expedition; the team had climbed just two peaks so far. The whole episode of 26th May unfolded in my mind. I scrambled out of the sleeping bag and came out of the tent to relieve myself. I could not believe my eyes at the sight that greeted me! The Western sky was painted red with the setting sun, in stark contrast to the silhouettes of Burphu Dhura and Sankalpa glacier. The full moon was rising above Suli Top and the expanse of Kalabaland glacier was bathed in soft moonlight with shimmering snow slopes all around. Chiring We, and the peaks towards North were breathtakingly beautiful, watching over the magical surroundings like serene sentinels. I could not contain my excitement, and called everybody out to experience the great spectacle. All of us were stunned and no one spoke for a while. Then some member enthusiastically made some coffee. Sipping away the coffee, we all were babbling away like excited children.

The atmosphere was so charged that evening that team mates found it difficult to go back to sleep. The snow was crisp, the glacier was fully lit up and a mad idea emerged. Why not climb at night? We thought about it for a while and the party which was supposed to start at 0500 hrs, got ready and started for Camp III. Snow was hard and crunchy and the party made good time. The route up to camp III, which takes about 5 hours, took only 1 and 1/2 hours. DQ and I remained at Camp II. We had come to Camp II the earlier day to wind up the camp. Most of the equipment had gone down to ABC and we were supposed take loads down to ABC on 8th June. This left us with a spare day. Now that we were fit, we had been toying with the idea of attempting a pyramid like unnamed peak(18,900 feet) standing above Camp II towards West. We had been told that there

was an easy route from the North ridge. This would mean that we go north on the route to Camp III, turn back and attempt the North ridge of this peak.

Our plans to get up at 0400 hrs went awry as we finally woke up with a start at 0545 hrs, got read hastily, cursing the earlier night's excitement for the delay. At 0600 hrs, we set off, the South-East ridge in front inviting us. This ridge was steep and icy but doable.

It was only then the reality of this great achievement hit us. Towards North, Chiring We was standing defiantly. The Majestic twins of Nanda Devi were looming at a height of almost 26,000 feet towards West.



There were avalanche gullies on both sides of the ridge and Burphu Dhura experience was still fresh in our minds. Towards the top, just about 100 feet short of the Summit, there was a rock patch blocking the route to the Summit. We did not have any ropes at Camp II. The patch looked easy and laziness overtook reason. We figured that if this ridge turned out to be difficult, we could always come down the easy North ridge. We donned crampons and started the climb with great anticipation. The air was crisp and cold and we were climbing with superb rhythm. No rope between us meant this was a "solo climb with company"!

We were in good spirits and managed to reach the base of the rock patch within next 1 and 1/2 hours. The 15/20 feet rock patch had ample holds and looked easy, but was slightly overhanging. Getting down this section without a rope would have been madness. We deliberated for almost 15 minutes. I would say, 'Let's go for it!' and DQ

would be skeptical. After some moments DQ would say, 'Hey, it's a cake walk, let's do it!' and I would become cautious and tentative. This flip-flop went on for a while. Finally we decided that we had the security of the knowledge that there was an easier route via North ridge and even if it did not work out we could always slither down the rock patch, arrest fall and get back on the route we had climbed (this would have been a bit desperate though!). We reached out for the rock; it turned out to be not very difficult. As soon as we had cleared it, we scrambled towards the top. We almost crawled onto the Summit and even before the joy of reaching the top of an unnamed virgin summit could enter our minds, we looked down on the other side towards the North ridge. The ridge looked simple, there were no crevasses blocking the route and we could clearly make out the trodden path going from Camp II to Camp III. With a great sense of relief we slumped on the summit.

It was only then the reality of this great achievement hit us. Towards North, Chiring We was standing defiantly. The Majestic twins of Nanda Devi were looming at a height of almost 26,000 feet towards West. The snaking expanse of Kalabaland and Sankalpa glaciers was breathtaking. Array of numerous snow capped peaks was rolling towards North East, fading towards Tibet, the Roof of the World. We were in the midst of an enthralling scene. We did not speak for a long time; both of us lost in that spectacular context. We were on top of the World!

Later we named this pyramidal peak as Tridhar (peak with three sharp ridges). The same day while we were returning from the Camp II to ABC, we met Crack and Jaggu, one of our high altitude porters, going up to Camp II. We shared the news of our success with them and mentioned the South-East

ridge route.

On 9th June, Crack and Jaggu were tempted to repeat the climb of Tridhar. While climbing up, they kept wondering at the one-way foot marks. They too had a difficult pause at the rock patch. After reaching the Summit they saw the foot marks going down the North ridge and figured out the reason for the 1-way track.

The near escape on Burphu Dhura and the subsequent successful first ascent of Tridhar meant a great deal for me. The uncertainty at the Rock Patch taught me the meaning of adventure. One can prepare for eventualities; the skills would come in handy, but at the end of the day one has to face the challenge squarely, irrespective of the uncertainty of the outcome. And that is adventure! Looking back, this experience has given me a sense of courage and resolve in many uncertain momentous situations in life and I consider it an important milestone.

In the end the expedition had climbed 7 peaks - Sankalpa 19,450', Rock Tower 18,370', Kalabaland Dhura 20,030', Bamba Dhura 20,780', and three virgin unnamed peaks were climbed and named as Uttar Dhura 19,800', Khadga Dhura 19,700' and Tridhar 18,900'. All 13 members had climbed at least one peak, and therefore the expedition was a great success. The return was speedy, but the terrain had changed totally.

Such a lot of snow had melted that some of the places were virtually unrecognizable. On 13th June we were back at Munsiyari - a happy lot but a trifle sad that it was all over. I now had a second birthday to celebrate - 26th May!



Vasant Limaye

Vasant Limaye heads High Places Management Pvt. Ltd. which is based

in Pune. A Mechanical Engineer from IIT Mumbai, the fascination for mountains led him to chart a career in the Outdoors instead. He has led 12 Himalayan Expeditions including the first Indian Civil Expedition to Mt. Kanchangunga (28,208'). A pioneer of Outdoor Management Development programmes in India, he is also an avid photographer and a Marathi writer. He can be reached at vasantlimaye@gmail.com.

Sudhir Karnik

(Spikey)

1951 - 2012



Spikey, was as we all knew him and not many seemed to know why or how Sudhir Karnik got this nickname. Even Spikey was rather evasive about it. Rajiv Deshpande (C72) who was Spikey's classmate in Bombay Scottish remembers him as a brilliant student and an outstanding athlete. It was Rajiv who finally cleared the mystery. Apparently it was Spikey's hair, which would protrude radially outward, that gave him his nickname.

Spikey's name conjures up many images. Spikey driving around the campus on his motor-bike (one of the very few in H3 at that point of time), Spikey wielding his racquet on the tennis court to win some badly needed points towards the Sports Trophy, Spikey as the roulette wheel operator in the hostel fetes. But having been his next door neighbour in H3 for two years, the most enduring of these images will be Spikey holding forth on a multitude of topics with a glass of his favourite drink in his hand.

Since all other guys in our wing (apart from Spikey) were from my batch (Class of 76), Spikey had become an honorary member of C76 and although most of us had lost touch with him in the intervening pre-email / pre-cellphone era, when we reconnected much later in the nineties, it was as if there was no intermission. He resumed his position as a full-fledged member of C76.

He had obviously added a few dimensions

to his already colourful persona. He had gained an MBA from Asian Institute of Management at Manila, was an active and a successful trader in the stock market, and had scored few solid home-runs as angel investor / VC . Although externally he was still the same old Spikey, hard-boiled, sharp-as-nails, street smart, no-nonsense guy, he had also become mellowed down in some ways. He had become a lot more approachable and one could feel the genuine warmth in his relationship with old friends like us. He was very free with his advice on the stock market and open to any of us to call him up and discuss any issues and connect us to his contacts as and when required.

In later years Spikey had developed a penchant for farming and he would spend his week-ends at his Vangani farm planting and organically nurturing a large variety of fruit trees. One doesn't know if he had had any premonition, but for last couple of years he seemed to be in a winding down mode. He was planning to take things a bit easy with his dogs and the Vangani farm. In fact over the past few months he spent an enormously long time with his dog, which he got operated upon and nursed back to health rather than put it to sleep as per the advice of his vet.

His sudden departure from the world on 17th November 2012 was probably characteristic of the person; "no long drawn farewells" for him. He leaves behind Anjali, with whom he had been married for more than three decades and two sons, Abhijit and Ashutosh, both of them married and well settled; Abhijit, the elder one in Bay Area and Ashutosh, the younger one in London.

We will miss you Spikey. Rest in Peace.

Shirish Potnis aka Potty

C76 - H3

Journey of Thinking and Destiny: Pranay V. Shah

1954-2012



Pranay joined IIT Bombay in 1971 after schooling at Cathedral High School, Mumbai. P Shah had many “avatars” at IIT....some knew him as a guitar player, others as a bridge player, some as a prolific reader & a philosophical person, and yet others knew him as the proverbial “mumbler” with one ear tucked in. Whichever “avatar” it was, a common thread ran through all of them....he endeared himself to one and all.

After graduating from IIT (Mumbai, batch of 1971), Pranay left for the US to do his MBA and pursue a managerial career. Being extremely reticent when it came to his own achievements, few of us would know that he graduated as a Babcock Scholar (the highest honour) from Wake Forest University, North Carolina. He rose rapidly in the executive ranks at Hanes, recognized always as caring and competent. Later, in 1995, he joined United Healthcare and stayed on till 2000.

In parallel, he continued studies into the “meaning of life”, which he had begun in high school! In the late 1980s, Pranay discovered a kindred philosopher in Harold Percival whose masterwork of "Thinking and Destiny" became his touchstone.

In February 1997, he reconnected with Mala Dayal, his school friend and they married happily. After returning to Mumbai in 2000, Pranay took up consulting and executive coaching.

In 2001, Mala and Pranay moved to Pune and Pranay added the mantle of becoming a life coach to friends....new and old, young and experienced. The lower you were in the socio-economic echelons of society the deeper was Pranay's involvement and the quicker his influence. As he would often describe, “They don’t carry any baggage and can grasp the true meaning of life in an uncluttered manner”. This life coaching, which was indeed precious to all who were fortunate to know him, shone even after he was stricken with leukemia and right to the end. Even in his last few months, Pranay brought so many estranged friends together, to carry on the journey of life as he had coached them to....with meaning and purpose. For Pranay, and an inspiring mantra for us, it was always "Forward". So it is....

Uday Bhende

C-76

Thank You

CARS: Contributors, Advertisers, Readers, and Subscribers. It has become customary to thank you every time. Your numbers are swelling steadily and your emails of appreciation are pouring in, but we want you to overflow out of our control.

Dictionary: You have a nice word called “anniversary”. Thanks to that, we realise that our baby is 1 year old today, still alive and very much kicking.

Manohar Parrikar: Somehow, you have become a regular on our Thank You page. Why don't you buy some permanent space here? You invited us for IFFI closing, made us meet international film makers, treated us atop a magnificent fort, and gave us enough Manu-smritis to fill up our pages.

Sultan Adil Shah: You built Fort Reis Magos in Goa in 1551 AD. That was the venue of a most incredible star-studded party the bees have ever had on a full moon night. Cheers! RIP!

Aruna Roy, Shailesh Gandhi, & Inayat Sabhikhi: You have a “right to information”. Hence, we are informing you that you activists rock, and make us proud. Lage Raho.

Ashima Goyal Siraj: See where your romance landed you! Straight into the beehive, to prod, probe and point us to more romance stories of the campus.

Shirish Waghulde: All our proof-readers so far have suffered nervous breakdowns. But you are still smiling. We promise to punish you some more.

Niranjana Bhat: We are always thankful to those who heed our SOS and our distress call. From distant shores and from diverse personalities, you got us fodder. We are going to lean on you heavily. We hope you won't tilt.

Vinay Karle: You have been cheering us from across seven seas for a year. With you in our hive, the beehive is a global body now.

Mira Nair: You're a film maker extraordinaire. We liked watching your "The Reluctant Fundamentalist". We are glad that you are not a reluctant interviewee.

Ramchandra Guha: Eminent historian, author, TV personality, columnist, and much more. Though IITB beat you and your St. Stephen's team in quizzes and debates during Mood Indigo in the 70s, you lent us one of your column pieces on environmental issues.

Sanchita Rodrigues: You are an integral part of Goa CMO. About 35 of our alumni tried their best to drive you mad. But you kept up your smile while ferrying us from CMO to Kala Academy to the boat to Fort Reis Magos. Viva la Goa.

Arun Inamdar: We could never have an issue

on environment without your cartoons in it. You send us some of your best at the 11th hour. We will keep sending you last minute requests in the future as well.

Milee Ashwarya: You, and your entire team at Random House India has got good taste. You like our writing skills and have commissioned us to write a book. We'll do our best to give you book, booker, and bookest.

Pareesh Chavan: For 5 issues in a row, we've asked you to print at the 11th hour and you have complied. We want to thank you now in the hope that you will cut down your printing bills.

What's hot and happening?: Fundamentals Birthday party on IITB campus on 30th December 2012. We accept gifts in the form of cash, advertisements, cheques, credit cards, wine bottles, honeypots and articles. Free handshake, autograph and a photo-op with our Queenbee to the highest bidder.

Creative Bees at Fundamatics

Illustration



Shreyas Navare
C'08, SJMSOM,
H-13

Shreyas Navare: (C'08, SJMSOM, H-13), Mumbai, Senior Manager,

Marketing and Corporate Communications at a private bank. He freelances as a Editorial Cartoonist for Hindustan Times. He has covered elections in 6 Indian states through the eyes of a cartoonist on behalf of HT. Shreyas has held many cartoon exhibitions, two of which were inaugurated by Dr. A. P. J. Abdul Kalam. His first solo international cartoon exhibition was held recently at Bangkok. His second exhibition was held at Nehru Centre recently. Cartoons featured in this issue are from the exhibition.

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IIT Bombay Alumni Association, 1st Floor, Gulmohar Building, IIT Bombay, Powai, Mumbai 400 076

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Design



Anand Prahlad
C'07, IDC, H-8

Anand Prahlad is an independent graphic designer and artist. When not design-

ing books, magazines, corporate identities or illustrating, he is an active gardener, culinary expert and amateur musician.

He runs www.thenewvitruvianman.com, where he writes and illustrates articles on design, gastronomy and music.



Arun Inamdar

Arun Inamdar is an example of the breadth and depth of talent in IITB. A

geologist by training and a professor at the Centre for Studies in Resources Engineering, he is a perceptive cartoonist and caricaturist with a soft corner for the campus and its ecology. His caricatures have brought smiles to an array of celebrities who have visited the campus and his cartoons hold up a mirror to our follies without causing offence. An alumnus of the C76, he can be depended upon to come to the rescue of the ACR office and IITBAA with his talent at very short notice.

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trikkon_dp@rediffmail.com*

