

EXPERT SPEAK

LALIT JALAN,
Chief Executive Officer,
Reliance Infrastructure



"A bright and new India can only be built on the foundation of a robust infrastructure. The government, through a number of regulatory interventions and path-breaking reforms, have significantly eliminated bottlenecks to propel the sector to a new growth trajectory. The renewed thrust on infrastructure, which has a number of forward and backward industry linkages, will lower poverty, create increased job opportunities and will contribute to economic growth. Better days for infrastructure are certainly here."

RAMESH KYMAL,
Chairman & Managing Director,
Gamesa Renewable Pvt. Ltd.



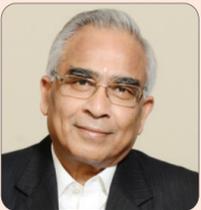
There is significant prospect for wind energy development in India and given the recent thrust to improve renewable energy prospects, we are confident of positive growth in this sector. Just like any other sector, opportunities are invariably accompanied with challenges and we need to work our way around these challenges for profitable growth. Roadblocks can be overcome if private and public organizations come together and address these problems in a holistic manner as a single entity. It has been interesting to note that the yawning distance between industry and government is waning, almost creating an environment that has made the gap invisible, which in itself is a step towards addressing these challenges.

MILIND BENGALI, Chief
Operating Officer, Business
Operations - GTL
Infrastructure Ltd.



GTL Infrastructure aims to be the most efficient tower company by maintaining very high levels of network quality and superior energy management services. This award acknowledges customer belief in our brand and further motivates us to reach greater heights.

**DWARIKA PRASAD
TANTIA,** Group Chairman,
GPT Infraprojects



"Our focus must be on refining our skills and aligning them to our economy's infrastructural needs. In the process, we must aim to build an India of modern infrastructure, and believe that our dedication to give our best at everything we do is going to be the key driving force, steering us forward."

ET Edge View

>> The pace at which infrastructural development is booming globally in the current era seems unstoppable. However, there is a need to create intelligent, sustainable solutions & increase the quality and efficiency of our infrastructure. Through the Economic Times Infra Focus Summit, we brought together leaders and visionaries as we sought to come up with optimal solutions for the challenges of the future.

An evening par excellence

The Economic Times Best Infrastructure Brands 2016 applauded those that have made fulsome contributions to India's bulwark infrastructure sector

India is the single largest democracy in the world, a nation replete with resources and harboring dreams of keeping pace with the latest and greatest that the world has to offer. Everything comes back to infrastructure though, and without building the infrastructure to match, all of those dreams will be that much harder to achieve. It is thus essential to strike a balance between urban development and appropriate infrastructural growth.

At this critical juncture in its development, India is pursuing sustainable infrastructure development even as India's demographic dividend is rapidly evolving. As a rapidly growing economy, India will witness a huge demand a paradigm shift over the next decade due to vast urbanisation, with a large proportion of the current rural population shifting to the cities by the year 2030, further underlining the need for quality, sustainable Infrastructure.

With this in mind, the Economic Times Best Infrastructure Brands 2016 sought to assemble the doyens of the industry in the form of industry leaders and key-decision makers as they deliberated on the challenges that lie ahead of the sector. This high-powered evening also saw the unveiling of the Economic Times Best Infrastructure Brands 2016 coffee table book followed by a felicitation ceremony for Infraprojects companies that have played a key role in pushing the sector forward.

The evening infrastructure leaders meet also saw Shri Mansukh Mandviya (Minister of State for Chemical & Fertilizers,

Road Transport & Highways) grace the occasion and offer his thoughts on how the nation as a whole can move forward into a new era of prosperity for all. With a renewed focus of the government on infrastructure creation, and with a new policy focus one can expect to see investor confidence and growth in the sector surge. As a nation, India has ambitious aspirations but a nation's infrastructure network is its backbone, and ours is one we need to firm up still further if we are to do the heavy lifting we envision as an economic superpower of the future.

Representatives of Essel Infra are recognized for their accomplishments by Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways)



An Economic Times Initiative

On the road to prosperity

Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways) speaks about how highways are a bright spot in India's infrastructure story at the Economic Times Best Infrastructure Brands 2016

At this critical juncture in its development, India is pursuing sustainable infrastructure development even as India's demographic dividend is rapidly evolving. As a rapidly growing economy, India will witness a huge demand a paradigm shift over the next decade due to vast urbanisation, with a large proportion of the current rural population shifting to the cities by the year 2030, further underlining the need for quality, sustainable Infrastructure.

Speaking at the unveiling of The Economic Times Best Infrastructure Brands 2016, Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways) underlined the growth of road transportation, stating that, "Truly, our nation will grow only if we build the right infrastructure. We have seen a development roadmap laid down in the last 2 years, after our Government came to power. In 68 years, 1,03,000 kilometers of national highways were laid down. As part of our plan, we have resolved to create a further 1,00,000 kilometers of national high-



ways by 2022." He further went on to say that "Infrastructure is the backbone for sustainable economic growth of the country, and ports and waterways will play a very important role in the coming years for India." By highlighting the Government's openness to industry interactions and encouraging thought leaders to assist in solving policy issues, it's clear that Shri Mandviya is focused on putting the nation firmly on the path to prosperity.

Simplifying and creating value

By simplifying complexity and creating world class projects on-time, Tata Projects has carved a niche for itself



Left to right: Mansukh L. Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways), Arabinda Guha (COO Industrial Infrastructure), K. Satyanarayana (VP & Head - Construction & Environment), Vivek Gautam (VP & Head - Transmission & Distribution) and SAA Irfan (VP & Head - Transportation)

Tata Projects is one of India's fastest growing and most admired infrastructure companies. It has expertise in executing large and complex industrial and urban infrastructure projects.

The company operates through its business units - EPC, Transmission & Distribution, Transportation, Construction & Environment, Urban Infrastructure and Quality services. The Company provides turnkey end to end solutions to set up power generation plants, power transmission & distribution systems, fully integrated rail & metro systems, commercial buildings & airports, chemical process plants, water and waste water management solutions, complete mining and metal purification systems.

Engineering excellence, supply chain expertise and construction management are its key strengths. The company is driven to deliver projects 'On-Time' using world class project management techniques and has uncompromising standards of safety and sustainability.

Tata Projects has the distinction of executing many first of its kind projects. Some of which include:

- The company has executed India's Largest Blast Furnace at Rourkela for SAIL and is currently executing an even bigger blast furnace
- The Company has successfully commissioned more than 12,000 Kms. of transmission lines across multiple voltage levels including 800 kV HVDC projects
- The company recently started construction using Helicrane in transmission line execution. This is not only the first time in India but also in South East Asia that Helicrane is being used for construction of

- transmission line
- The Company is executing Dedicated Freight Corridor project (Eastern & Western) of a total length of 1592 TKM. The project is being executed using Mechanized Track Laying Machine which is a first for India's Rail Sector
- The company offers Smart Lighting and Security Solutions for the smart cities segment and it is currently executing Smart Lighting project in Pune
- The company is currently executing first of its kind River Rejuvenation Project in Jaipur

Tata Projects undertakes a wide range of social initiatives too, which include:

- **Employability Skill Training** wherein Tata Projects provides training to the underprivileged and unemployed youth for developing their employability and promoting entrepreneurship skills.
- **Education initiative**, Tata projects supports education around its project sites to children from weaker section of society. Over 10,000 students have benefited from this initiative
- **Safe Drinking water initiative** by Tata Projects is aimed at providing safe drinking water around its project sites. It supports setting of RO plants, installation of water tanks and hand pumps
- **Community Based Activities** are undertaken for underprivileged communities residing within 5km of Tata Projects sites. These include organizing livelihood training, medical camps, old age home visits and tree plantation activities

Raising a toast to those redefining the industry

The achievements of leading infrastructure brands were celebrated at the unveiling of The Economic Times Best Infrastructure Brands 2016 coffee table book

These are the ones that said "why not?" when others looked on and asked "why". They were the dreamers and the doers, the achievers that dared to make a better tomorrow a reality. These myriad brands have played invaluable roles in creating world-class infrastructure, and the belief is that an event such as this will be the catalyst for other infrastructure brands to play their part in building the progressive India of tomorrow. The tales of these brands were immortalized in a coffee table book titled "The Economic Times Best Infrastructure Brands 2016", which was unveiled in the evening function.

Those recognized for their achievements and contributions were

- Adani Ports
- Ashoka Buildcon
- Bharti Infratel
- Energy Development Company
- Essel InfraProjects
- Gamesa India
- GPT Infraprojects
- GTL Infrastructure
- GVK
- JSW Energy
- L&T
- MBL Infrastructure
- MEP Infrastructure Developers
- Overseas Infrastructure Alliance (India)
- Ravin Group
- Reliance Infrastructure
- Soma Enterprise
- Sterling and Wilson
- Sunil Hitech Engineers
- T K Engineering Consortium
- Tata Projects
- The Braithwaite Burn and Jessop Construction Company
- Ujaas energy
- Vishvaraj Infrastructure



Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways) unveils the ET Best Infrastructure Brands 2016 coffee table book

Essel Infra: Envisioning Smarter Cities and Villages

Essel Infra is essaying a key role in contributing to India's ongoing infrastructural growth story



Representatives of Essel Infra are recognized for their accomplishments by Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways)

India being at the helm of global economic development and increasing incomes, is witnessing a sea change in the distribution of its population. By 2030, it is predicted that urban pockets will house over 70% of the nation's population. This burgeoning population, will be contributing to around 75% of the country's GDP. The preparation for such a future will require comprehensive development of physical, institutional, social and economic infrastructure of urban conglomerates.

The pursuit of building

smart cities and villages is also being given emphasis by the government. The Ministry of Urban Department (MoUD, GoI) has defined smart cities as ones that include three pillars of Competitiveness, Sustainability and Quality of life. The key infrastructure pillars in such cities comprise transportation, power, integrated utilities, urban development, resource management, and IT based connectivity.

With a firm resolve to improve and enhance urban and rural infrastructure of the country, Essel

Infraprojects Ltd (EIL) has endeavored to create an environment where everyone gets the facilities and lifestyles they dream of. EIL's vision is transforming lives of people with state of the art urban facilities to support happy living.

Thought leaders in building a wiser and smarter India, Essel Infraprojects Ltd. is recognized as one of the fastest growing infrastructure companies having diversified interests in infrastructure projects with a presence in more than 17 states and 100+ cities across India. By virtue of its varied portfolio and expertise across the infrastructure value chain, EIL is India's first and only Integrated Smart City master Developer.

Essel Infra is playing a crucial role in 3 major strategic business units that include Core Infrastructure, Green Energy & Power Transmission and Integrated Utilities. By continuously embracing and implementing world renowned best

practices and technologies EIL is providing scalable and affordable services for a smarter and enhanced lifestyle.

India truly has experienced tremendous dynamic advancements in recent times. Initiatives like Swachh Bharat, Rural Electrification, Make in India and Digital India are robust proof of the progressive temperament of the government. EIL's idea of building smart cities and villages, is also a step towards realizing these goals. The Group's endeavors are at tandem with Prime Minister Narendra Modi's vision and his People Public Private Partnership (PPP) Model, and are striving to constantly work towards the nation and the State's many aspirations to come true. It is this philosophy that leads EIL to continue undertaking many new attempts in developing renewable energy, cutting-edge infrastructure, and integrated utilities.

www.esselinfraprojects.com

Carving a path to success

MEP Infrastructure Developers has essayed a key role in helping build the better India of tomorrow

As a major player in the toll collection and OMT segment, what according to you has helped the company maintain its leadership position in this space?

>> The last 6 years have seen the opening up of the tolling space for private participation. MEP has been consistently bidding, winning and operating multiple toll plazas under National Highways Authority of India and State Governments in multiple states. We have successfully completed and handed over 106 projects under tolling over the last few years.



The company is also operating 3 OMT projects under National Highways Authority of India (NHAI)/ Maharashtra State Road Development Corporation (MSRDC) where it is responsible for collecting the toll and maintaining the project facility along with it.

We believe that our experience and in-house expertise in traffic forecasting, operation, and maintenance enables us to effectively handle large projects over a longer period of time.

The government's recent announcement on the TOT projects with an upfront payment for a longer gestation period (up to 30 years) marks as a bigger opportunity for the company's growth going forward. NHAI expects to garner Rs. 75,000 crores under TOT in phase I.

The company currently holds leadership position in terms of current ongoing projects under the Hybrid Annuity Model, can you take us through the number of projects that you have in your kitty right now and the progress?

>> In 2016, as we could foresee an exciting opportunity in the hybrid annuity space, we along with our Joint Venture Partner, San Jose India decided to bid for 8 HAM projects. Of the 8 projects bid for, we won 6 (4 projects in Maharashtra and 2 projects in Gujarat) aggregating to an order book of Rs. 3836.99 crores.

As on date the Company holds a sig-



JAYANT D. MHAISKAR

Vice Chairman and Managing Director, MEP Infrastructure Developers

nificant market share of 14.55% and project wise is still a leader in the HAM space.

Under these projects, the company will be constructing four lane concrete roads of 235.41 Km over a period of 2 to 2 ½ years and would maintain the same for 15 years post construction.

The revenue for these projects will be received by the company from the authority in the form of 30 bi-annual payments amounting to over Rs 50 bn over the next 15 years post COD. We have recently achieved financial closure for our 2 hybrid annuity projects for the outer ring road of Nagpur city and expect to achieve the same for the balance 4 projects over the next few months.

The toll collection responsibility on the stretches developed under HAM lies with the authority post completion of the project, thereby as a company we are mitigated with the risk of tolling and tariff for these projects go-

ing forward.

The company has received in-principle approval from SEBI for the Infrastructure Trust.

>> Yes, MEP Infrastructure Developers Ltd. has received an in-principle approval from the regulator to register an InvIT and is in the advance phase of filing the DRHP.

What would be the focus of MEP going forward? Which segments do you plan to focus on?

>> The Company will continue to focus on its core strength of operating and maintaining Toll roads along with the newly acquired construction projects through the hybrid annuity model (HAM). The government's announcement on the monetisation of toll roads for a longer duration through TOT comes across as a bigger opportunity for the company's growth going forward.

BUILDING A BRIDGE TO SOLAR

Bikesh Ogra, President, Renewable and Electrical Business, Sterling and Wilson, speaks with us about how the company stands at the vanguard of a new era for the Indian energy sector

In your opinion, how is India poised to meet its energy needs through renewable energy sources such as solar or wind?
 >> India has around 250 million people with no or limited access to electricity according to the World Energy Outlook report 2015. The energy demand in India is at its

own small way by being the largest Solar EPC company in India by installing more than 1 GW on ground and aims to deliver much more in coming few months. By 2020, India aims to achieve at least 10% of the power generation through renewable energy considering the country's energy security



Representatives of Sterling and Wilson are recognized for their accomplishments by Mansukh Mandviya (Minister of State for Chemical & Fertilizers, Road Transport & Highways)



peak as is the growing population. As India gears up to meet the target of 175 GW of renewable energy capacity by 2022 set by the Central government, Solar power has a major role to play in achieving this target as it aims to install 100 GW of solar out of the targeted RE capacity apart from balance power from Wind and Hydro. Sterling & Wilson has been contributing in

concerns. As per MNRE records, currently 4.7 GW of Solar power has been installed in the year 2016. This means its needs to scale up to 20 times its present capacity to meet the target in next six years.

Though an achievable target, the Central government needs to introduce effective policy and regulatory framework to ensure we

reach the planned capacity. Mechanisms like Renewable Purchase Obligations, generation based incentives, subsidies, strengthening of the Transmission and Distribution (which has been a focus of the Central government) etc., would be some helpful tools if implemented in right directions. The challenge is to ensure the states follow the RPO targets and its implemented to avoid penalties.

How Renewable energy sources

are fueling India's surging energy demands in a clean and sustainable manner and Sterling and Wilson's role in this.

>> The present Central government has made energy access and climate change core to their development discourse since they came into power, which has made the ambitious target of achieving 175GW of renewable energy capacity by 2022 look like being achievable, with a clear strategy roadmap, integrated planning,

and a whole-of-system approach that factors in domestic developmental and environmental considerations being put into place. India was already a pioneer in renewables through sustained efforts on the wind energy domain over the last decade or more, which even today forms the largest installed base of renewable power across the country. However, solar has started to spear head renewables in this phase, what with India adding 3,019 MW of solar capacity over the last fiscal alone, and now with brisk central and state solar auctions and PSU initiatives under the RGO (Renewable Generation Obligation), poised to exceed the original solar mission target of 20GW within a few years as opposed to 2022.

With the GW-plus scale backing its rich EPC experience, Sterling and Wilson is well positioned to support growth in the Indian solar market through our commitment to quality and timely-delivery, as

most of the investors desire to work with reliable, bankable Solar EPC companies, who can deliver solar projects on time with quality. Traditionally, Sterling and Wilson has been a pioneer in Turnkey MEP contracting services over the last 90 years, and has strong presence across Africa, Middle East, South East Asia and Latin America. Our largest operational solar PV Plant is of 90 MW in size, located in South Africa, while we are in the works to build one of India's single largest plants on turnkey

basis this year, which would be a 130MW plant in Southern India, which speaks highly of our industry leading engineering, procurement bandwidth and delivery expertise on ground. As India's leading solar EPC, and being among the global top 10, our geographical spread and the varied size of projects executed across the world, coupled with our execution capabilities, ensures that our clients - the power producers - only need to focus on providing clean and affordable power to all.



Contributing towards Digital India

Milind Bengali, Chief Operating Officer, Business Operations – GTL Infrastructure Ltd., speaks to us on how GTL Infra's unstinting efforts have helped ensure that this tower company has carved a niche for itself

How do spectrum auctions affect tower companies like GTL Infra?

>> In the current auctions, if an operator has gone aggressive as against spends plan, then there is a likelihood that such operators may delay their rollout for some time and tenancy growth in the short term may get delayed. However, in medium term to long term, a spectrum auction always means large tenancies for tower companies like GTL Infra due to the following two reasons -
 1) Higher frequencies are being auctioned. These higher frequencies bring with them larger propagation losses, and therefore to maintain the same quality of service in the given coverage area, operators need a large number of cell sites. This means tenancies ramp up for GTL Infra.



therefore more tenancies for GTL Infra.

What opportunities are presented to GTL Infra and tower companies due to GOI's Digital India mission?

>> GTL Infra has a portfolio of about 28000 towers located across India that will help bring connectivity at affordable prices, creating a positive impact on the Indian economy.
 1) Digital India's mission to connect all 250,000 gram panchayats, provides good opportunities to GTL Infra.
 2) Secondly, the mission to connect

40-50 thousands untapped villages will directly benefit GTL Infra through larger tenancies due to fresh rollouts.

3) As we know that "Universal Access to Mobile Connectivity" is one of the nine pillars of Digital India. It is extremely important to have a strong wireless network for Digital India to succeed. Not only do we need to improve on quality of service but also increase network penetration and ensure coverage across the length and breadth of the country. All this would translate into large



tenancies for GTL Infra and shape its contribution towards the realization of the Digital India mission. GTL Infra is committed to ensure that close to 100% network is available so that users benefit to the fullest and enjoy the fruits of Digital India, such as universal literacy, e-healthcare, government services on demand and much more.

What are GTL Infra's strengths as a tower company?

- 1) GTL Infra has a very good mix of both rural as well as urban portfolio. While penetration is improving in urban areas, there are rural areas where coverage still needs to grow and where GTL Infra currently has a good tower footprint.
- 2) In rural areas, GTL Infra has sizeable numbers of ground base towers of 50-60 meters height. Such higher heights give better line of sight and also give large area of coverage for the operators.
- 3) Amongst tower companies, currently GTL Infra has a good capacity, which is being utilised by all operators translating into substantial numbers of full paying tenants for our company within the year.
- 4) GTL Infra has a strategic footprint of infrastructure in critical and growing areas of J&K, North East, Assam, Uttar Pradesh and Bihar.

The need for inclusive infrastructure

Inclusive infrastructure can play a key role in eradicating the gap between the haves and the have-not's in the Indian context



It is a well-known fact that India is one of the fastest growing economies in the world today, and the growth numbers achieved are all the more impressive since ours is a nation still developing the requisite infrastructure to match its growth rate. India's current infrastructure deficit is not only acting as a headwind to further prosperity, but also widening the gap between the richer and poorer segments of society. The need of the hour is for not only high-quality infrastructure that connects and empowers the nation, but also reliable infrastructure. This calls for concerted political will, focused investments and technological innovation that meets local needs at a cost that won't burn a hole in the exchequer's pocket. The historical correlation between infrastructural growth and robust economic development cannot be ignored, and the Western world is a shining example of this. For India to get there and ensure sustainability, it is important to focus on inclusive growth that carries everyone along. India's disparate geographic demands and socio-economic conditions only fur-

ther complicate the equation. With increasing migration to urban areas and rural areas becoming more upmarket, intelligent and aspirational, the need for developing quality infrastructure takes on a more pressing look with each passing day.

The adoption of technology could be key through measures such as Information and Communications Technology (ICT), which can help in intelligent mapping and management of critical and heavily used public utilities. The implementation of this technology will only help in terms of improving the cost and quality of our infrastructure and services delivered, not to mention the fact that it will tie in seamlessly to the smart cities of tomorrow.

Technology can also help better extend services like primary healthcare, banking, e-Governance and education to the rural population. All it takes is forward planning and prudent implementation of technology to help India's evolving infrastructure give an impetus to the nation's growth agendas we inch ever closer to becoming an economic superpower.

Smart cities for a smarter nation

Building Smart Cities is the dream, but there are many miles to go before we reach it



Just as smartphones enabled a global revolution in the way we live our lives, smart cities have the potential to change the way we live our lives. However, we cannot act on perceptions, data is king in this case. We must figure out the level of infra planning and investment.

The strategy of the government is well articulated and correct. It is looking to kick-start public expenditure led infrastructure development, and smart cities are a smartly packaged idea whose time has come, but the bedrock of smart city economics is asking the corporate sector to participate in building it via the Public Private Partnership (PPP) model. However, most of corporate India is reluctant to step up to the plate because their fingers have been burnt before, and it will take time to rebuild that trust. The essence of a PPP is risk sharing and not risk transference. If

we see the urban sector, many are not successful. We need to see what model fails and what flies for the creation of Smart Cities.

More importantly, we need measurable outcome to be defined. If all we have is a fuzzy concept that no one wants to define, we might well be putting our energies into chasing an elusive unicorn. We need to define the goalposts, or you could have a smart city without knowing what's smart about it! Leaving it to the states to implement is not optimal. With the right guidelines, we can work towards realizing this dream more effectively.

Interestingly, in India, we are focusing on infrastructure, but in the west they are focusing on citizen engagement and that could be one of the definable measures for smart cities since optimal citizen engagement is essential if we are to look at a successful PPP model for Smart Cities.

Breaching new frontiers

T K Engineering's unstinting efforts to connect the remotest parts of India has seen them carve a niche for themselves

With an increasing need for inclusive infrastructure, how can we better connect the remotest regions of India with world-class infrastructure?

>> State Govts. of remotest corners of the country are not financially healthy and hence the Central Govt. have to step in for constructing roads and other public facilities at the remote areas of border line states through Participatory Management Practice. In last seven decades after 15.08.1947, these have been provided in selective places and now the need is being felt in acute way.

Not only roads, villages in N-E states do not have proper school building. Schools are working but not with required teacher strength, some are locked. Only road will not improve the life style of citizens. Functional Community Centers & Health Centers are equally needed. Road construction, Education, Health, (the basic needs) all are in duel control of Central & State Govts. Are the Govts. serious about their role? It is a big question. PMGSJ was a unique programme in this direction, but due to various reasons like wrong selection of Contractors, wrong administration of Contracts, many roads, conceived in this programme, funds allotted, have not come up to desired level; whether it is in Jammu or in Arunachal Pradesh. Proper on field monitoring was required; which was absent.

Even if the Govt. of India conceives a project of road widening and award work order, the State Govts. are to acquire land. Some States are reluctant to acquire land and help the schemes to see the light of implementation, due to administrative & political apathy.



A large portion of the Indian population resides in its vast rural interiors. How can we meet their needs for better infrastructure?

>> Even today in 2016, there exists villages from where 4 hours walking is needed to reach a motorable single

lane National Highway. Instead of lamenting on the existing situation, the local MLA, MP, DC are to be held responsible for proper drawal of Projects (road & other facilities), which are to be focused to the Central Ministry through State Govt. on a time bound way.

Without time bound accountability, no scheme can see the light of implementation within a reasonable time. All stake holders the Central Govt machinery, the State Govt. machinery, the beneficiaries the local political figure heads are to approach the issue with

mutual sensitivity to each other's concern and priorities.

What are the unique challenges you had to overcome when it comes to the construction of roads in hilly, remote areas?

>> To come to unique challenges that the construction agencies often meet, they are:

- i) To widen single lane National Highway to double lane, keeping the existing traffic flow in fact is, very little available space for the working fleet and works are required to stop after every 20/30 mins to allow the traffic to pass. That way mobilized manpower & equipment's remain under utilised. Working beyond dusk is not allowed with the apprehension that wild life will be disturbed.
- ii) Hard bargaining by the residents to part with their road side property against Govt. approved rate of Compensation (which are often very much back dated).
- iii) Ensuring top class quality with adequately qualified and experienced manpower and bring all ingredients from faraway places, is a big challenge.
- iv) Shifting of existing utilities beyond the working width of road alignment is a herculean task since the owner of utilities are often reluctant to come forward spontaneously to comply with the requirement.
- v) Out of 12 months, monsoon remain active for six months, when frequent land slide from hills is also a challenge for proper timely execution. Keeping the existing pathway traffic worthy is itself a challenge to the agencies.

