

# Connect



**The Team that  
made Chennai  
Metro a  
success story**

**Egis: Bengaluru Mumbai  
Economic Corridor Plan**



**Egis: Member of French  
Delegation Focusing  
on Infrastructure  
Developments  
in Telangana, Hyderabad,  
Andhra Pradesh, India**



July 2015





## The Team that made Chennai Metro a success story

Chennai is the fourth-largest city in India with a population of about 8 million. The city generates around 11 million trips in a day, with about 6 million vehicular trips. Chennai Metropolis has been growing rapidly and the traffic volumes on the roads have also been increasing enormously.

To address this massive increase in road traffic in Chennai Metropolis, the Government of Tamil Nadu decided to implement the Chennai Metro Rail Project.

Chennai Metro Rail Limited (CMRL) was entrusted with the execution of the project. CMRL's biggest challenge was to set up a team of global experts who could understand the challenges and offer global standard solutions that are cost effective, timely and scalable.

To execute a project of such a large scale, a consortium under the leadership of Egis was roped in as General Consultant.

The Chennai Metro Rail is launched on June 29, 2015. Tami Nadu's Hon. Chief Minister Ms. Jayalalitha inaugurated the Metro Rail service between Koyambedu and Alandur metro stations.

### The broad scope of work for Egis included:

- Preparation of bid designs, bid documents and providing all necessary assistance in bid evaluation, negotiations (if necessary) and award of design and build contracts
- Review and proof-checking of the detailed designs submitted by the contractors
- Construction/ erection supervision at all levels including contract administration, safety, quality and environmental aspects, co-ordination, review/ monitoring of works of all consultants, suppliers and manufacturers, plan for O&M, framing of O&M Manuals
- Testing and commissioning



*“Chennai Metro has been an extremely satisfying project for Egis due to the sheer complexity that helped us bring the best of global technology, experience and knowledge to offer the most sustainable solution under the given set of constraints. Egis is really elated and proud to play a key role in this project.”*

Mr. Ashish Tandon, MD, Egis in India

# Bengaluru Mumbai Economic Corridor (BMEC): Sustainable Development Plan

The Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry, has initiated ambitious projects and proposals for promoting economic development in India, especially to enhance Secondary Sector contribution to GDP to 25%, by creating sub-national territories with industrial nodes. Towards this goal, the Government of India (GoI) intends to develop the Bengaluru Mumbai Economic Corridor (BMEC), among other corridor regions.

Egis is Consultant to the Delhi Mumbai Industrial Corridor Development Corporation, which is appointed as the project nodal agency by DIPP, GoI for preparation of the Perspective Plan for the BMEC Region along with CRISIL and IAU.

As a regional plan this project provides a framework for the government to be an enabler to attract private investment in manufacturing, mainly through provision of large scale regional trunk infrastructure and through development of Greenfield Industrial Nodes.

Here, for the first time in the domain of industrial infrastructure based regional planning, the department has mandated Green & Sustainable development objectives at the very upstream level. The tradeoffs are mostly between social, economic and environmental concerns.

Overall objective of this mandate is to promote economic development, which is environment friendly & Inclusive, which integrates transport infrastructure & industrial development and which adopts green vision.

## **BMEC Region- an ambitious vision for future economy:**

- **BMEC's region spreads across two major states of Karnataka and Maharashtra**
- **On an average 30% of the total area of the respective states and around 40% of their population fall within the BMEC Region**
- **The corridor is delineated around three main infrastructure networks, the existing National Highway 4 (NH4), which connects Bengaluru City to Mumbai City, existing Bengaluru-Mumbai Rail link & Dabhol-Bengaluru Gas Pipeline**
- **The overall length of the corridor is around 1,000 km and covers an area of around 143, 000 sqkm and with an existing population of around 79.8 million, with 41.5 million falling under the core area of the corridor region**
- **The projected population in the BMEC Region for 2041 is around 123.4 million and the induced employment due to BMEC is expected to be around 23 million**
- **It is estimated that the industrial investment in the BMEC Core region itself will cross 115,000 million USD by 2041**

*As a regional plan this project provides a framework for the government to be an enabler to attract private investment in manufacturing, mainly through provision of large scale regional trunk infrastructure and through development of Greenfield Industrial Nodes.*

## Highlights of BMEC Perspective Plan Proposal:

The perspective plan, through detailed assessment and subsequent interaction with the stakeholders has identified ten potential locations for development of Industrial Node-cum-Mega city, within the BMEC Region, to fulfil the estimated industrial demand of the region.

BMEC Perspective Plan has also identified various infrastructure gaps & certain crucial infrastructure developments which need to be addressed in order to achieve the above-mentioned economic projections, benefits and to facilitate establishing the industrial nodes. This includes:

- Development of Ports
- Port connectivity
- Enhancement of various road & rail projects across the region
- Development of power infrastructure
- Provision of water, establishment &
- Upgradation of airports etc.



## Balancing Trade-offs:

For this ambitious project hinged upon industrial node development & large scale trunk infrastructure, our questions are about trade-offs

- How concerned should we be about our environment Or how much environmental degradation should we tolerate if it allows us to have a higher GDP?
- Can the city-regions of the BMEC be competitive, inclusive and sustainable, all at once? These are not mutually exclusive development objectives
- How could we meet the original project objectives of the mandate at a Regional Scale?

Achieving a balance between economic growth orientated development and environmental sustainability, Industrial development and Inclusivity, were the major challenges and these challenges were met by adopting the following eightfold strategies, which attempts to adopt a Middle Path towards achieving a “Globally Competitive & Sustainable Development”:

- Balance with Nature
- Optimization of resource utilisation (land, water, energy etc.)
- Inclusive development
- Land Management Strategies
- Transit Oriented Development
- Promoting BMEC as a Green Corridor
- Multilevel Stakeholder Consultation
- And finally, POLICY INSTRUMENTS FOR SUSTAINABLE DEVELOPMENT for all downstream projects

## **Balance with Nature:**

Although the objective was to develop an Industrial Corridor to enhance economy, achieving it by, protecting natural ecosystems, conserving the environment and minimising any possible impact on environment, remained as the prime focus of the perspective plan. The following were some of the key measures adopted as part of the perspective plan towards achieving the same:

- Regional Level Environmental Suitability Assessment was carried out to carefully exclude environmentally sensitive areas from the corridor region. Based on this, entire Western Ghats, which is rich in bio-diversity and acts as a watershed for majority of the rivers in the region, is alienated with sufficient buffer from the delineation of BMEC region
- With more than 56% of the core region under single crop, fallow land, waste land & mining category, the delineated BMEC region covers predominantly areas with relatively less fertile, unproductive lands with special focus on areas which are relatively less dependent on farm / agro based activities
- A GIS based Locational Suitability Assessment was carried out to identify an appropriate location for developing industrial nodes within the delineated BMEC region. This assessment ensured that the location of industrial nodes are not in proximity to environmentally sensitive areas and land where the soil condition permitted double and multi-cropping

## **Optimisation of Resource Utilisation:**

Optimal consumption of resources, especially land, water and energy, is another major parameter which influenced sustainable development of

the BMEC's perspective plan.

*A GIS based Locational Suitability Assessment was carried out to identify an appropriate location for developing industrial nodes within the delineated region*

Optimal Node Size: Estimation of land demand as per planning norms requires ideal size of industrial node to be between 90 and 120 sqkm. National Manufacturing Policy demands a minimum node size of around 50 sqkm. However, with limited land available for development, with constraints on mobilising land and to meet client's objectives of land optimization, following alternative modalities were explored.

I. Assessment & estimation of industrial land requirement were carried out for each of the identified potential industrial sectors, for each of the districts of the region. This determined the specific land requirement for each node, rather than arriving at conventional ball park estimates which are generally on the higher side

II. Concepts of flatted factories/Stacked factories rather than sprawling industrial layouts are proposed for possible industrial sectors

III. Greenfield-Brownfield Integration: The proposed Greenfield Industrial nodes are strategically planned to be located in proximity to existing industrial clusters in order to promote efficiency and economy of scale. This would also facilitate in sharing of resources, infrastructure & various industrial facilities like, logistic hubs, supply chain, vendor establishments, Urban Infrastructure etc. This is expected to optimise consumption of

land, water & energy

IV. Compact industrial nodes: it was also recommended to have number of compact smaller industrial nodes of 25 to 50 sqkm, rather than large scale centralised industrial nodes of more than 50 to 150 sqkm

Based on the above-mentioned strategies to optimise land utilisation, BMEC was proposed to have 10 smaller industrial nodes with an area ranging from 25 to 50 sqkm, which were located in close proximity to existing industrial areas and also in close proximity to each other to form clusters, which facilitates sharing of infrastructure.

Productive Infrastructure: Egis has innovated technologies that synergize the use of physical infrastructure, otherwise passive, for active production of energy. "WIND IT" is one such innovation where wind turbines are installed on Telecom Towers, where energy produced is in turn used for telecom equipment needs. Several other innovations include the solar mountain by Elioth, to support energy positive food production and the energy positive foot bridge, in the Netherlands. Egis has also developed technology innovations for waste to energy proposed here in the BMEC PP. Use of waste water sludge with refuse derived fuel to support farming through production of manure. RDF as fuel for cement manufacturers are some innovations.

With majority of BMEC region, best suited for harnessing wind & solar energy, majority of the above-mentioned productive infrastructure concepts are recommended as part of the perspective plan. This integrated multipurpose infrastructure facilities, not only act as an infrastructure which facilitates in resource

production, but also in resource optimisation, through minimal & multipurpose utilisation of land, reuse of water and production of energy without consumption of fresh resources.



**BMEC was proposed to have 10 smaller industrial nodes with an area ranging from 25 to 50 sqkm, which were located in close proximity to existing industrial areas and also in close proximity to each other to form clusters, which facilitates sharing of infrastructure.**

## Optimisation of Water Consumption:

- Reducing the unit consumption of water by improving the efficiency in manufacturing process by at least 1/5th of the current usage
- Increasing efficiency in utilization of water by at least 30% by using cooling water towers and other energy retrofits
- Around 30% of the industrial water demand is strategized to be met through use of treated wastewater for industrial process like ash handling (in case of thermal power plants); washing of ores etc.
- Utilizing the treated water available from the STPs of urban areas, for industrial usage is expected to fulfil around 40% of industrial water demand
- Smart water networks for Industrial water supply would also improve the efficiency of water usage by minimising UFWs & other water losses
- Implementation of rain water harvesting can also bring down the total domestic & industrial water demand by another 5 to 10%
- Improved efficiency in agriculture sector water utilization, through Micro Irrigation/ Drip Irrigations schemes can reduce the agriculture demand of the region by 30%. The water saved can be utilised to meet drinking water supply demand of urban areas/ megacities and Industrial water demand
- Reducing water losses due to existing irrigation system by improving irrigation canal infrastructure, to reduce the losses to less than 20% from existing level of more than 60%. This water saved in agriculture sector is expected to fulfil the demand of drinking water supply demand of urban areas/ megacities and Industrial water demand

## Inclusive Development:

The economic growth & development in BMEC Perspective Plan is proposed to ensure equitable development across the region with additional stimulus for relatively less developed region & to enhance existing agro based economy of the region.

Key Components of Inclusive development:



- Additional 23 million employment to be generated as proposed BMEC Perspective Plan, is expected to create job opportunities to the growing demand of non-agriculture workforce of around 8.26 million (5.5 excluding Pune district) in the region, which has grown at the rate of 32.7% during 2001-2011
- 2.4 million (i) agricultural labourers (of total 4.7 million (ii)) in BMEC region, with no agricultural land, will get an opportunity to become a part of formal employment sector with higher per capita income
- Industrial node cum megacities proposed in relatively less urbanized districts (less than 22% of Urban Population) and proposed industrial development (other than node) in other less urbanised districts, ensures access to higher order social infrastructure facilities including health and education to its rural hinterlands
- The proposed economic development is

expected to enhance the Per Capita Income of the BMEC especially in thirteen (13) districts of the region, which are below their respective state's average Per Capita Income. Industrial Nodes cum mega cities are proposed in Eight (8) districts, out the total 14 districts of BMEC region which are below their respective State's average Per Capita Income, out of which three (3) are considered to be priority Nodes. This indicates that the development will enhance the economic development of relatively less developed districts of the state

- Proposed Human Resource Development & capacity building strategies of the region and the demand for 23 million workforce by 2041, would ensure development of skilled human resource within the region, creating opportunity to the local population

- With more than 13%(iii) of the region under Waste land, Fallow land and Mining Land category and around 43% of the region under Single Crop category, majority of the land requirement for

*With more than 13% of the region under Waste land , Fallow land and Mining Land category and around 43% of the region under Single Crop category, majority of the land requirement for industrial & infrastructure requirement would be predominantly meet through the above-mentioned categories and government lands, without impacting the 28% double crop, irrigated & productive category lands. Majority of the industrial Node locations were also located within districts which has more than 50% of the land under above-mentioned categories*

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### **Integrating Agrarian Economy with Manufacturing through Agro Processing Industry:**

- The BMEC corridor will provide employment opportunities to the local population through identified employment intensive industries such as textile, agro & food processing, engineering, etc.

- The region scores high in terms of agro products. Maharashtra ranks first in the country for its fruits cultivation, Sangli is one of the leading grape producing districts in the country. Bedgi chilly of Karnataka is one of the hottest chilli species being produced, which is popular for its oil extracts used as base for various products. Kolhapur & Belagavi has prominent sugarcane cultivation with sugar industries. Hence, demand based development of agro processing industries with establishment of world class infrastructure, which would open avenues for agriculture produce & agro processed products, to local & export markets, remained as the primary focus of the Industrial based economic development of BMEC, which complements & enhances the existing agriculture base of the region

- India has emerged as one of the key sourcing destinations for agri-based raw materials required for Nutraceutical industry. Around six districts of BMEC region are identified for development of Nutraceutical industries

•Agro processing sectors's share in BMEC accounts for 14% of the total investment in BMEC region, with expected employment more than 1 million jobs and a turnover of approximately USD 31,000 million by 2040-41

### **Land Management Strategies:**

Although the consumption of land is optimized through various strategies, mobilising these lands for development is still a bigger challenge. Various strategies were adopted to mobilise land to minimise direct land acquisition process, in order to promote participatory economic development of the landowners and also to optimise Government's investments in land acquisition.

#### **Some of the key strategies are:**

- Availability of large contiguous government land parcels or cluster of government land parcels in proximity, within the identified potential taluks, were assessed & identified to locate the sites for proposed industrial nodes**
- Balance areas were proposed to be mobilised through, Land Polling Schemes, which allows the land owner to retain certain portion of the land in proximity or within the node**
- Various schemes of Public Private Partnership modes that allow the landowners to have revenue- share and certain stake in the overall development; allowing the landowner to have business opportunities in non-processing zones etc. were also explored and recommended as part of the perspective plan**

### **Transit Oriented Development Plan:**

The DIPP has also strongly emphasized the need for Transit Oriented Development as a backbone for the region. Rail and road based transit coupled with last mile connectivity at local levels, serves the BMEC Region's industrial nodes.

The region is structured through network of Dedicated Freight Corridors, High Speed Rail Links and Green Field Expressway and the proposed industrial nodes cum cities area proposed all along these transportation corridors. The Ports, which are located on the western coast and are physically separated from the region by Western Ghats, would be connected through spur lines.

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## BMEC as a Green Corridor:

As explained above, with sustainability as one of the key Vision, BMEC is also envisioned as a Green Corridor. Hence, the establishment of Green Industries, use of Green Energy, optimisation of water consumption, maximum utilisation of LNG, and minimising use of fossil fuel based transportation modes etc. are some of key measures adopted to ensure BMEC being developed as Green Corridor. The following are some of the key facts which support the same:



- Green industries including services sector are expected to account for 23% of total investment in BMEC region, 18% of industrial units and 13% of the industrial turnover in 2040-41

- Green industries along with services sector will have an optimum land requirement and expected to account for only 4% of land in overall BMEC region. These industries will not have high employment intensity while catering to only 2% of the overall employment in the region

- Industries which are considered as green for this analysis includes biotechnology, solar PV, robotics, biometrics and gas-based industries

- With predominant part of Dabhol-Bengaluru Gas Pipeline running across the corridor region, the region has the

advantage to use Gas based power generation which is considered to be relatively a green energy when compared to other solid or liquid fossil fuel based energies. As per the BMEC'S power sector perspective plan, 17% (8400 MW) of the additional power demand of the region for next 25 years is proposed to be met by gas based power plants. Around 12 gas based power plants with an average capacity of 700 MW is proposed to be set up in the BMEC region by 2041, of which 8 are in Karnataka and 4 in Maharashtra

- With both the BMEC states having immense potential in terms of wind, small hydro power (SHP) and solar energy, the power perspective proposes that around 23% (11040 MW) of the region's additional power demand till 2041, can be met though renewable energy sources. This will be over and above the 17% share of power to be achieved through Gas based power plants

- With stringent measures, by adopting Recycle & Reuse of water, through establishment of STPs, CETPs, BMEC region's water consumptions levels are proposed to be reduced, which would optimise the fresh water demand of the region

*With both the BMEC states having immense potential in terms of wind, small hydro power (SHP) and solar energy, the power sector perspective of BMEC, proposes that more than 23% (11040 MW) of the region's additional power demand till 2041, will be met though renewable energy sources. This will be over and above the 17% share of power to be achieved through Gas based power plants*

## Multilevel Stakeholder Consultation:

The process has most importantly involved engagement with multiple stakeholders. These include ministries at central and state government levels, government departments at District, Taluk and Village levels; town and country planning offices of various districts in the two states; industrial development authorities, line departments, representatives of international finance institutions, industrialists – large and medium sized through the work of our partner, CRISIL who conducted detailed market assessment of growth potential; exploring interest of industrialists for green innovation; extensive field visits by the planning team and engagement with intermediaries that facilitate land mobilization and industrial development.



## Policy Instruments for implementation of Sustainable Development:

Finally making mandatory, SUSTAINABILITY POLICY INSTRUMENTS for project implementation:

Life Cycle Analysis (LCA) allows measurement of per unit GHG emissions across production systems. For example, LCA could be conducted for production of buildings. For industrial buildings a

choice could be made between stacked factories or flat sprawling factories; or whether factories should use steel and glass structure for future flexibility of function given the context of footloose economies or should they build using cement concrete- these decisions must be made depending on the quantum of GHG emissions for short, medium and long term sustainability benefits.

Further, the Perspective Plan proposes the mandatory use of a tool such as EGIS Tendem empreinte® for measuring level of sustainable development for all downstream projects in BMEC Region. For example, the decision regarding size of dam and reservoir involves social-environmental versus economic costs. Making LCA and Tendem empreinte® mandatory for downstream will help understand tradeoffs for



growth versus social concerns and the environment.

This project is in progress. The next stage involves preparation of master plan for one node, which will involve demonstration of these eight key strategies.

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- i) As per the 32nd round of the NSS about 51.37 per cent of the agricultural labour households did not own any land
  - ii) PCA, census of India, 2011
  - iii) EGIS analysis of LULC data provided by MRSAC, GoM & KRSAC and DoI, GoK

# Egis: Member of French Delegation visiting Telangana, Hyderabad, Andhra Pradesh on Urban development and Renewable Energy

The region encompassing Hyderabad, Telangana, Andhra Pradesh in India offers a lot of development potential in and around it.

To explore possibilities in the field of urban development and renewable energy, a French delegation comprising of eminent members, met the key officials in the region.

Egis, as one of the leading French companies in the field of urban development and renewable energy, was elated to be invited to be part of the delegation.

The delegation was led by H.E. Mr Paul HERMELIN, Special Representative for Economic Relations with India and joined by H.E. Mr François RICHI-ER, Ambassador of France to India, among other prominent members.



# **Egis Road Operation India (EROI). awarded O&M Services Contract (Toll & Incident Management) for Jetpur Somnath Tollways Private Limited (JSTPL)**

Jetpur Somnath Tollways Private Limited (JSTPL), a project promoted by Uniquet Infra Ventures Private Limited, awarded O&M Services Contract (Toll & Incident Management) to Egis Road Operation India (EROI).

Uniquet Infra Ventures Private Limited (Uniquet) is a joint venture of UEM Group Berhad (a wholly owned subsidiary of Khazanah Nasional Berhad – the investment arm of Government of Malaysia), through its subsidiary PLUS Expressways International Berhad and IDFC Limited. The share holding pattern is Uniquet: 48%, PLUS: 26%, IDFC: 26%.

Jetpur Somnath Tollways Private Limited (JSTPL): Uniquet has got majority equity stake (74%) in Jetpur Somnath Tollways Private Limited (JSTPL) which

has implemented the 124 Km long BOT project on NH-8D connecting Jetpur and Somnath in the state of Gujarat with Two Toll Plazas (10 Lanes each).

The commercial operations started on 7th May 2015.

Uniquet is currently prequalified to bid for several road projects in India. It is also seriously exploring more and more acquisition opportunities. Uniquet envisions long-term investment in viable infrastructure projects in India with focus on operational excellence, risk management and corporate governance. Uniquet has built a team of committed professionals with deep expertise in investment management, execution and operation of infrastructure projects



**Salient aspects of O&M Contract awarded to EROI are:**

**Scope: Toll, Route Patrolling and Incident Management**

**Duration: Three years (Two years with one year automatic extension)**



# Q&A

A candid conversation with  
**Sudhir Rajeshirke, Head, Aviation, India**  
about his views on the aviation sector in India



**Where are the growth opportunities in the airports industry? What are the current infrastructure constraints that are driving this growth?**

Amongst several factors, the growth of airports is primarily driven by the population density, size of catchment area and the economic prosperity of the region. We find such need for airport infrastructure typically in Tier 1 cities in India, less in Tier 2 cities and minimally in Tier 3 cities. Although in the last decade, several cities have moved from Tier 2 to Tier 1 category. So there is a need for increasing the capacity of existing airport infrastructure in Tier 1 cities. Hence we have the proposed airports in Navi Mumbai which will support growing passenger demand in Mumbai Metropolitan Region and Mopa in Goa. In addition, airlines in India are consistently adding new aircraft to their fleet which create a demand for parking space in Tier 1 city airports where the airlines are based. Hence the existing infrastructure is in dire need for expansion. However, demand for airport

infrastructure in Tier 2 and Tier 3 cities needs to be assessed rigorously.

**So how does the demand for airports in Tier 2 and Tier 3 cities fit into the Government's vision of building 50 low cost airports in such cities?**

That depends on the way we view airport infrastructure. If you want to provide mere connectivity, then upgrading the existing airstrips would suffice leading to limited CAPEX investment. However, if you want to develop as airport with passenger terminal and associated facilities, then viability of the airport needs to be assessed. But will airlines fly to such cities if their operating costs are not covered without sufficient passenger traffic? In addition, as most of the airports are now planned to be funded under PPP mode, the financial viability of the airport in a Tier 2 or Tier 3 city from private bidder's perspective needs to be supported either via VGF, grants or tax breaks.

**So how can you make this vision**

## possible?

**The solution is not easy, but not impossible either.** Rather than up grading a small existing airport and waiting for demand to build up, planning should be carried out to create an infrastructure within a city to create a self-sustaining demand for an airport. An example of such exercise is planning of airport cities. In developing countries, the airport city concept is being used as an urban planning tool to plan and accommodate strong economic and population growth. Nodes of excellence such as tourism and industrial cities can be planned which can better accommodate an airport as a part of an overall transportation ecosystem. Such 'airport cities' drive demand for quality infrastructure such as business parks, hotels, recreation centers, parks etc. For this one needs to define an application of the airport city concept that is appropriate for the region thereby increasing nonairline revenues, and mitigating the risk of uncertain Government funding in terms of VGF or grants.

**How is Public Private Partnership (PPP) model of development driving the airports business and are there any constraints in this model?**

The PPP model was implemented with great success in privatizing major Indian airports. Although there were issues with the model, steps are taken to address them in the next phase of privatization. Today, airports in New Delhi, Mumbai, Hyderabad and Bengaluru are operating at world class service standards. Companies are bringing airport management models which were not implemented before. However, PPP also depends on capacity of private (typically infrastructure) companies to raise equity and debt funding, which is a constraint.

*Nodes of excellence such as tourism and industrial cities can be planned which can better accommodate an airport as a part of an overall transportation ecosystem.*

Companies are over leveraged and banks don't have unlimited money to lend to infrastructure companies as funds are prioritized for other infrastructure sectors such as roads and highways, power etc. Hence companies interested in investing in airports are looking for new ways to raise cash such as going public or tapping into international bond markets. But overall, PPP model will con-



tinue to drive growth and service quality of Indian airports.

### **How do you perceive the development of aviation sector in the next five to ten years?**

The first round of airport privatization under PPP model was initiated in 2004 and subsequently New Delhi, Mumbai, Bengaluru and Hyderabad were privatised. Now we are seeing a second phase of privatization efforts in which greenfield airports are planned in Navi Mumbai and Goa and four other brownfield airports would be developed under operations, management and development model. There is a major interest to develop airport in Dholera as well. Hence the second round of development has begun and will continue to drive the aviation industry in the next five to ten years.

There are however few key issues that need to be addressed before the development efforts achieve a certain level of success. One is land acquisition – large tracts of land are required for development of a greenfield airport and increasing the capacity of brownfield airport. Clear land acquisition policies and

implementing them would ease the development efforts. Second issue is environment clearances. Aviation projects take years to achieve suitable clearances from local and national agencies. And third is development of a comprehensive civil aviation policy which takes into consideration the interests of all stakeholders such as airlines, airport operators and investors and passengers. Such policy is critical overall development of the sector and balancing interests of all stakeholders is an extremely difficult task. However, India's civil aviation sector has progressed well since 2004 when aviation grew rapidly in India and I am hopeful that if the momentum continues, we will see removal of major roadblocks in the development of aviation sector.

*As most of the airports are now planned to be funded under PPP mode, the financial viability of the airport from private bidder's perspective needs to be supported either via VGF, grants or tax breaks.*





## Egis signs a contract to provide incident response services in Sydney area



From the 1st of October 2015, Egis will provide incident response services for 3 years on the Lane Cove Tunnel and the M2 motorway in Sydney, Australia.

Tollust, a subsidiary of Transurban Group, the major player in managing private motorways in Australia, which is the concessionaire in charge of the operation and maintenance of these two motorway sections, assigned the management of incident response services to Egis.

## Turkey: Start of the contract for the operation and maintenance of the Gebze-Izmir motorway

The contract for the operation and maintenance of the Gebze-Izmir motorway in Turkey has just come into force for a period of 22 years. Egis is in charge of pre-operational services, operation, maintenance and toll management of the motorway for

OTOYOL As, the concessionaire towards the Turkish General Directorate of Highways ("KGM").

The Gebze-Izmir project is a toll motorway procured by the Turkish General Directorate of Highways under a Build, Operate and Transfer (BOT) Model. This project is the largest BOT project in Turkey up to now.

It includes 420 km of motorway (2x3 lanes) between Gebze (on the North shore of Izmit Bay) and Izmir, as well as a 3,000m suspension bridge crossing Izmit bay, three tunnels with an approximate cumulative length of 6km and 20 toll stations.



The project is implemented in two phases:

- The first phase from km 0 (Gebze) to km 58 includes the 3,000m Izmit bay suspension bridge which is one of the longest suspension bridges in the world by the length of its central span (1,550m). The level of traffic for the first phase is expected to be about 40,000 vehicles per day.
- The second phase includes the remaining 362 km of motorway between km 58 and Izmir, two tunnels of 1,700m and 1,020m as well as the ring road of Bursa, the fourth largest city in the country.

Egis is a 50% shareholder of the operating company Gebze Izmir İşletme ve Bakım (GİİB). The other 50% are held by the shareholders of the concession company.

GİİB is in charge of the operation, mainte-

nance and toll management of the motorway. GİİB is also in charge of pre-operational services needed for the opening to traffic of the motorway. After a first stage of definition of the operator's needs, the purchase of vehicles and equipment, the recruitment and training of staff and the development of the whole operating documentation will follow.

The operation of the first phase will start at the end of 3.5 years of works at the beginning of 2016 and the second phase is expected to be in operation mid-2020.

With the start of this contract, Egis strengthens its presence in tunnel and motorway operation, maintenance and tolling activities in Turkey. Egis is in particular in charge of the operation of the Eurasia Tunnel (a 5.4km twin-deck tunnel under the Bosphorus strait).

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## **News from the Milan UTIP 2015 Congress**

Egis took part in the 61st UTIP World Congress and Exhibition which was held in Milan from 8 - 10 June 2015. It's the most important professional international event on public transport and mobility.

With its slogan "working for mobility for more than 50 years", the Egis stand displayed the Group's expertise in transport projects for large metropolitan areas and confirmed its positioning with regards the mobility of tomorrow. The highlight of Egis's involvement was the cocktail event held at the stand in the presence of Nicolas Jachiet who welcomed Philippe Yvin,

Chairman of the Board of Directors for the "Grand Paris" project.

## **Australia: Egis opens to traffic the tunnel and urban motorway Legacy Way in Brisbane**

The urban motorway Legacy Way, located in Brisbane in Australia, has just been open to traffic by Egis. Egis is responsible for the operation and maintenance of the project for 10 years on behalf of Transcity.

The Legacy Way expressway is approximately 7 km long, including one 4.6 km long twin-tube tunnel connecting the Western Freeway with the Inner City Bypass. The Legacy Way traffic forecast is 34,200 vehicles on an average weekday rising to 50,800 in 2026.

Brisbane City Council (BCC) awarded the Legacy Way project to Transcity JV in December 2010. Transcity JV is responsible for the design, construction, operation and maintenance of the Legacy Way project for 10 years. Transcity JV includes Acciona Infrastructures S.A. of Spain (40%), BMD Constructions Pty Ltd. of Australia (30%) and Ghella S.p.A. of Italy (30%).

Under the contract signed on 21 June 2013, Egis Road Operation Australia is responsible for the operation and maintenance works of the Legacy Way for 10 years as the sole subcontractor of Transcity JV.

The project includes:

- two separate parallel road tunnels, one for the eastbound traffic and one for the westbound traffic, each one with two lane carriageways and connected by cross passages every 120m without any lay-by or breakdown bay;
- tunnel portals on the Western Freeway at Toowong and on the Inner City Bypass at Kelvin Grove;
- tunnel management system, fire safety, mechanical and electrical systems, ventilation systems;
- adaptations of existing roads to connect the tunnels to the existing network;
- a free flow electronic tolling system (not part of the contract).

This new success consolidates Egis' position both in Australia and in tunnel operation and maintenance. Egis currently operates 50 tunnels worldwide for a total length of 47 km.



## The A4 motorway from Wroclaw to Katowice, Poland

**Maintenance of fixed operational equipment and tolling systems contracts.**

### Project overview:

Egis is in charge of the maintenance of fixed operating equipment (telecommunication and traffic management systems) and tolling system on the A4 motorway Wroclaw–Katowice in Poland.

The 162 km motorway between Wroclaw and Katowice is part of the transeuropean

network ( Corridor Dresde – Wroclaw-Cracovie-Lviv). This motorway section , which was formerly free, has been upgraded to meet the standards of toll motorways.

It includes the following equipment, which is designed, installed and maintained by the EGSTRA (Egis and Strabag) consortium :

- 68 toll lanes on 13 toll plazas monitored by one operation center,
- 80 pairs of Emergency Roadside Telephone located along the 162 km of the motorway and managed by GDDKiA.

### Our missions:

After designing and installing the equipment, Egis was tasked for 3 years of the maintenance of all the fixed operating equipment.

Since 2015, Egis has been in charge of 2 distinct contracts:

- Until December 31, 2018 ( 43 months) : maintenance of fixed operating equipment (telecommunication and traffic management systems) for the Opole branch of GDDKiA
- Until November 2nd, 2018 (41 months) : maintenance of the tolling system for the Warsaw branch of GDDKiA



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