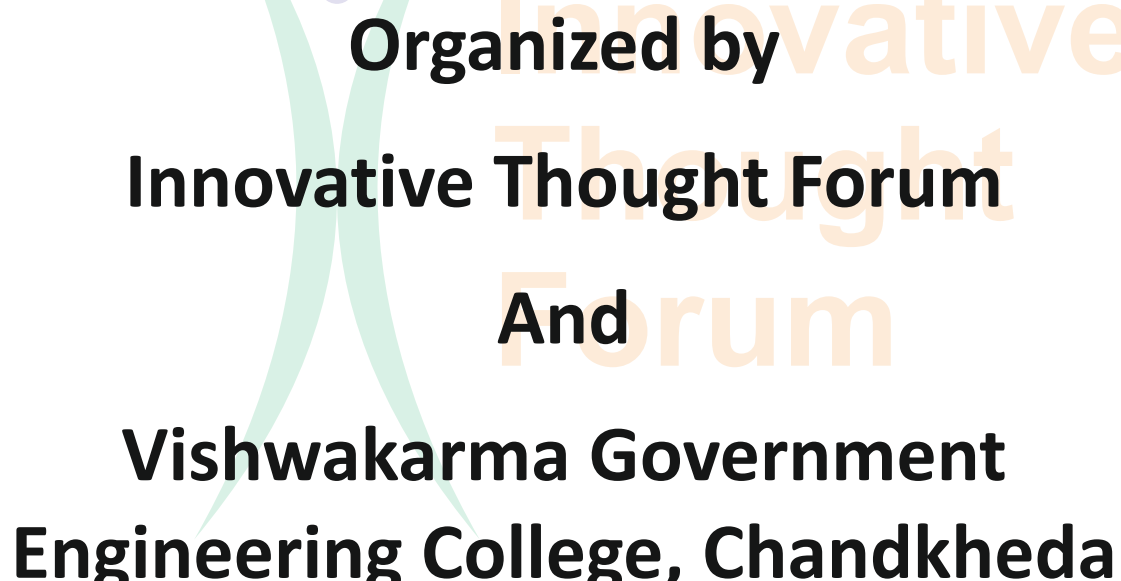


**Roundtable on
GEOSYNTHETICS IN INFRASTRUCTURE**



**Organized by
Innovative Thought Forum
And
Vishwakarma Government
Engineering College, Chandkheda**

On May 05, 2018

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BACKGROUND AND CONTEXT:

- Geosynthetics now a wide field encompassing geomembranes, geotextiles, geogrids, geocells, geocomposites etc.
- Expanding worldwide and proving great utility in many infrastructural sectors like roads, erosion control, water, waste containment etc.
- Used in many projects in India over last 30 years and technically well accepted in several prestigious projects of roads, bridges, railways, airports, water etc.
- Relevant standards and installation guidelines now available from BIS and Indian Road Congress though consultants and users still more comfortable with foreign standards.
- High priority area for Government of India - Ministry of Textiles – for spread of geosynthetics as a major component of technical textiles.
- Special funds earmarked for standardization and use of geosynthetics in priority areas like North East through ATIRA and other institutions.
- Lack of awareness in the user departments of the techno-economic benefits.
- Prevalent myths of geosynthetics being very expensive without knowing that geosynthetics can be and are lower in CAPEX and OPEX while improving life of infra asset.
- Absence of geosynthetics in curricula of relevant Engineering Colleges.
- Massive plan for expansion of roads, bridges, railways and other infra sectors that will need huge quantum of geosynthetics.
- Lack of knowledge among designers, contractors and workmen resulting in suboptimal use and quality.
- Penetration level in India at a level of 5% of the potential areas as against 80% in China and nearly 100% in U.S. and Western Europe.
- Need for coordination and action by all stakeholders.

PRESENTATIONS (ATTACHED):

1. Geosynthetics for Infrastructure and Water Conservation by Mr. Ravi Shankar G, K's Technical and Management Consultants, Baroda
2. Importance of Geotextiles in Infrastrucure Construction with emphasis on Development of Northeast Region by Mr. C.R. Prayag, ATIRA
3. Geo Source – A complete Geosynthetics Solution Provider by Mr. Utkarsha Parikh/ Mr. Rasesh Mehta, Geo Sources
4. Use of Geosynthetics and Geogrids in road sector by Mr. Subhash Patel
5. Geosynhetics for Development of sustainable Infrastructure & way forward by Mr. Vetcha Ravikanth, Reliance Industries Limited.



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DISCUSSIONS:

- ✦ Excellent presentations by various people giving an end-to-end picture of geosynthetics field.
- ✦ Major manufacturers unable to create markets in India and focused on exporting to well established centres of use like USA, Europe etc.
- ✦ Leading manufacturer worldwide present in India, mainly for off shoring of its production and unable to create Indian market.
- ✦ Very few designers and engineers with knowledge of geosynthetics.
- ✦ Though economic benefits of geosynthetics experienced by NHAI or others, spread to other projects restricted for irrational considerations.
- ✦ In road sector, rural and urban roads not touched by the manufactures and solution providers.
- ✦ Indian Road Congress, Railways etc. still reluctant to make geosynthetics compulsory despite years of successful use. Main constraint being failure of contractors to give assurance of performance over a period of time.
- ✦ Canal lining with geomembranes still to find acceptance due to a mixed performance.
- ✦ Pond liners now accepted geomembrances under subsidy schemes of certain governments. Big scope for further spread of this concept for collection of rainwater and use for farming after rainy season.
- ✦ Implementation of projects now being carried out by ATIRA and others in association with competent contractors.
- ✦ Dearth of competent contractors and skilled workmen acting as one of the major constraints.
- ✦ Tendency of manufacturers and installers to remain conservative in their overall approach.
- ✦ Large raw material manufactures still not acting aggressively for application development and promotion amongst the users in government or private sector.
- ✦ Use of recycled plastics with geosynthetics still limited due to lack of appropriate standards permitting use of mixed plastics in different formulations.
- ✦ Overall feeling of cautious optimism amongst all stakeholders but absence of exuberance and enthusiasm for massive propagation.
- ✦ Lack of knowledge among applicators and contractors leading to higher costs and inferior quality.
- ✦ Overall lack of coordination among stakeholders like raw material makers, processors, system suppliers, designers, consulting companies, contractors, users etc.

SUMMARY:

- ✦ Dissemination of knowledge for design, selection, installation and application of geosynthetics
- ✦ Awareness creation for showing benefits of geosynthetics in areas like roads or railways where both CAPEX and OPEX can be brought down while improving the life of the asset.
- ✦ Incorporation of geosynthetics in tenders and contracts
- ✦ Lack of testing and design methodology
- ✦ Lack of availability of standard software for arriving at optimal design and costing.
- ✦ Lack of user friendly guidelines.



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OUTCOMES:

- ✦ Coordinated efforts needed to evolve proper design and products for our country.
- ✦ Introduction of relevant subjects in undergraduates and higher studies in Engineering Colleges.
- ✦ Focus by academicians to prepare guidelines for testing of the product.
- ✦ Need to press for inclusion of geosynthetics in all the road projects, railway projects and water harvesting structures.



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ACTION PLAN:

- ✦ To form a dedicated group by combining industry, designers, contractors, application development specialists, BIS, testing institutions like ATIRA etc. for presentations/roundtable discussions in select departments like NHAI, PWD, Irrigation, Railways etc.
- ✦ Study the current standards and code of practice available from BIS and IRC for the use of geosynthetics of different types. Further action to spread them in the relevant user departments or customers. Besides needful action to improve the guidelines and manuals.
- ✦ Working on inclusion of geosynthetics in various tenders, contracts and schedule of rates.
- ✦ Creating substantially larger demand for attracting other manufacturing units which can help in lowering the cost while improving quality.
- ✦ Preparing educational content and materials for use in Engineering Colleges and Institutions at undergraduate and postgraduate syllabus.
- ✦ Close interaction between industry, institutions, user departments, practicing engineers to spread great utility of geosynthetics in infrastructure.
- ✦ Imparting skills to workmen through various nodes for improving manpower availability and quality work while lowering overall costs.