

Welcome to Dignitaries & Delegates

At

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Session III

Green Ratings Project findings and status of regional power plants

Fly Ash Utilisation: Opportunities & Challenges

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Ecology with Economy

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TALK ABOUT POLLUTION WITH A SOLUTION



Typical Clay Brick Activity





Base Line: Clay Brick Activity

Clay brick production is one of the energy-intensive activity due to thermal energy required for sintering operations. On an average, each one million clay bricks consume over 260 tons of coal, or equivalent fuel belching unprocessed flue gases as well as over 380 tons of CO₂.



Base Line: Clay Brick Activity:

- **Fast depletion of fertile lands near urban centre compels clay brick manufacturers to drift to farther places.**
- **Lease cost for lands with good quality clay is increasing day by day, forcing the manufacturers to compromise on quality of clay.**
- **Standards of sintering temperature of kilns is compromised due to spiraling costs of coal and other fuels.**
- **Clay brick price is linked to landed cost. Thus, farther the clay brick activity from demand zones, higher is the transport cost.**

What is FaL-G:

FaL-G is the patented technology (Patent No. 198639) developed by Dr N Bhanumathidas & N Kalidas, for the production of fly ash Bricks and blocks.

Fly ash (the residue of coal combustion in boilers of thermal plants and other process industries) is blended with lime/cement and gypsum to get FaL-G. Sand or stone dust is added as filler.

This technology is being promoted by Institute for Solid Waste Research & Ecological Balance (INSWAREB) and, as of now, over 18,000 plants are working with an aggregate out put of over 54 billion bricks (or equal volume of blocks) and turnover of approx. Rs. 21,600 crores, in India.



FaL-G Technology and Features



FaL-G facilitates to consume various industrial byproducts thus avoiding the use of top soil, paving way for sustainable food production by protecting the fertility of agricultural lands. In view of this macro service to mankind, the technology is let loose to be practiced without invoking patent.







FaL-G Technology and Features

Each FaL-G brick plant in tiny sector can absorb 15 workers. About 270,000 workers got livelihood from over 18,000 plants presently working through out India. There is a potential to create work for about 15 lakh workers when 100,000-unit target is accomplished.

In view of year-long activity, FaL-G brick units offer sustainable livelihood to workers, thus avoiding bonded-labour and child-labour.



By replacing the application of clay bricks in the construction segment, both in housing and infrastructure, FaL-G bricks/blocks serve the market with more vividity.

COMPARISION

SINTERED CLAY BRICK	FLY ASH BRICK
Uneven shape as hand made	Uniform in shape and smooth in finish
Lightly bonded	Dense composition
Plastering required	No plastering required
Compressive strength is around 35 Kg/cm²	Compressive strength is around 100 Kg/cm²
More porous	Less porous
Water absorption 20-25%	Water absorption 6-12%

In view of the high strengths feasible with FaL-G, the scope of brick is enlarged from walling to infrastructure applications such as Khadanza pavements, arch dams etc.



By this aspect the scope for fly ash consumption is maximised.

KHADANZA PAVEMENTS WITH CLAY AND FaL-G



Khadanza with FaL-G bricks – 20 yrs

← Khadanza with Clay bricks – 70 yrs





FaL-G:CDM Project



- * FaL-G is energy-free technology abating GHG emissions, thus qualifying for CDM.**
- * Tiny and small scale plants cannot absorb transaction costs involved in registering their activity as CDM Projects, which is equally applicable to FaL-G units.**
By utilising the opportunity of 'Bundling' even these small units could be benefited out of CDM revenue.



How does FaL-G Technology qualify for CDM



Each one million FaL-G bricks help to:

Conserve 4,500 tons of fertile top soil

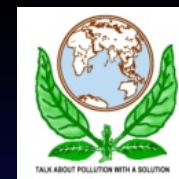
Consume 3,700 tons of various industrial byproducts

Conserve 260 tons of coal or equivalent fuel

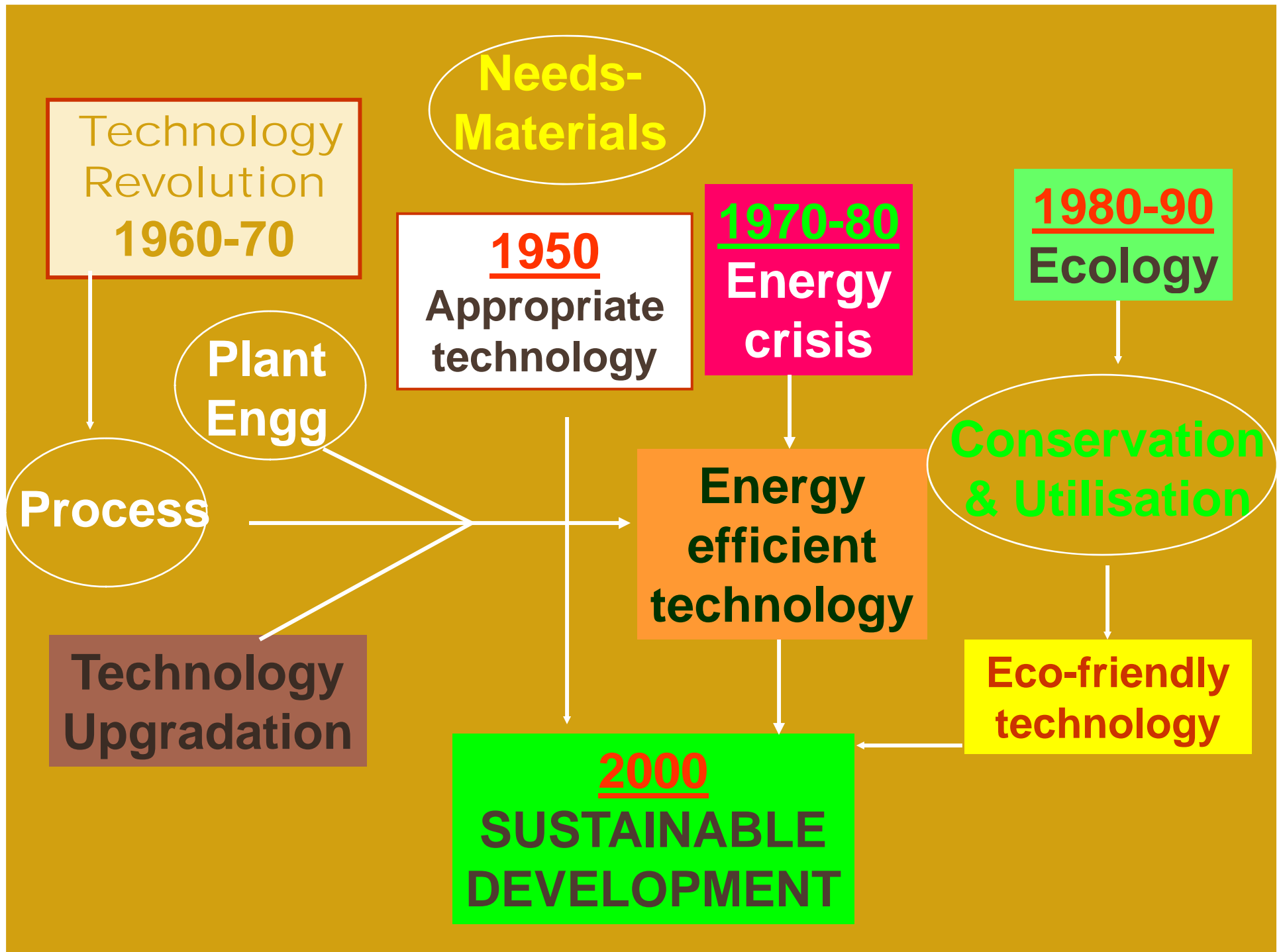
Abate about 381 tons (241 after leakages) of Carbon dioxide



Contributions of FaL-G Technology in National Perspective



Ministry concerned	Activity
Ministry of Rural Dev.	Conservation of fertile top soil; protecting land for agriculture.
Ministry of Power	Conservation of coal. To make use of huge quantities of fly ash.
Ministry of Environment & Forests	Abatement of Pollution. Abatement of CO ₂ emission.
Ministry of Poverty alleviation	Creation of year-long employment to rural folks.





FaL-G:CDM Project

Under Bundling program, Eco Carbon Pvt Ltd., has signed an agreement with The World Bank, the Trustee of Community Development Carbon Fund (CDCF), offering 451,590 Contract ERs.

This contract is accomplished 2 years ahead of Schedule.

CHALLENGES

Despite of all these attractions clay brick activity could not be stopped due to strong socio-economic logistics attached as under:

240 billion potential giving a turnover of over Rs. 1200 billion. How much is accounted for? Not even 20%!

Tax regimes are not complied with!

Statutory compliances are not adhered to!

Unaccounted coal encouraging coal mafia!

Unaccounted land cess!

Minutes of meeting held on 7.1.2015 at MoEFCC in response to NGT-directions

Inclusion for use of fly ash bricks in the environmental clearances to construction projects along with strict monitoring mechanisms is likely to increase the market for fly ash bricks.

Therefore, for the present, restricting the production of red bricks around thermal power plants may not be considered.

It was finally decided that the Minister may consider amending the notification on these lines.

Unless ban on clay bricks is invoked in letter and spirit by Union Government, beyond politico-social considerations, fly ash bricks can not penetrate.

To facilitate the transition, INSWAREB offered National level training to clay brick manufacturers on FaL-G technology, by addressing letters to Minister of Environment as well as Prime Minister.

Migration of clay brick manufacturers to FaL-G Takes place only when a level-field is offered at par with clay brick activity on taxation and Statutory compliances.

CONCLUSIONS

Fly ash should be made available as easy as clay.

Fiscal incentives should be at par to that of clay brick industry, as enjoyed, though unofficially.

Fly ash brick industry should be accorded National status, for promotion and popularisation.

CONCLUSIONS

The living practices in Rural regions taught Sustainable Development long back much ahead of the scientists coining the word based on maladies of modern living.

If Rural-Infrastructure is protected, with particular reference to roads, water bodies communications, and irrigation facilities, it is possible to protect the rural-social fabric. FaL-G can contribute its mite in this direction.

CONCLUSION

**The advancements in material science
together with agenda of
solid waste utilisation
can certainly provide solutions to
Sustainable Development.**



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**This is how FaL-G is the technology of
Sustainable Development**

**And could prove as the contributory tool to the
Action Plan on Climate Change in India**

**Thank You
for Your Kind Attention**