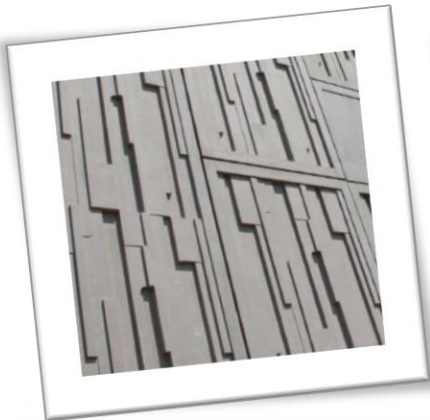


Glass Reinforced Concrete (GRC).

Production of GRC or GFRC.

Glass Fibre Reinforced Concrete (GRFC) Industry



Introduction

GRC or GFRC is made in thin concrete sections created by a proprietary process of machine spraying an enriched OP cement and aggregate mix within which alkali resistant glass fibres provide the reinforcement. Unlike steel, glass fibres will never rust and are placed throughout the thickness of the panels.



GRC is approximately 80% lighter than pre-cast steel reinforced concrete cladding, it offers greater versatility due to its superior compressive strength and most importantly its flexural properties. Due to the reduced weight it is environmentally friendly in comparison to pre-cast concrete with lower co2 emissions caused during manufacture. The emission reductions are significantly enhanced if the reduced load on the superstructure with the resultant economies in structural frame and foundations are taken in to account. GRC receives a BREEAM A+ material rating and is easy to handle and fast to erect due to its lightweight mounting on a range of bespoke support systems.



GRC is a composite material produced by reinforcement of a cementitious matrix with alkali resistant glass fibres. It can be produced in different grades, according to its flexural strength, and therefore its range of application is very wide. In its basic form, it is used to produce simple ornamental items; while in its high-tech version, it is the preferred construction material to produce large, thin-walled structural elements of very complex shapes.

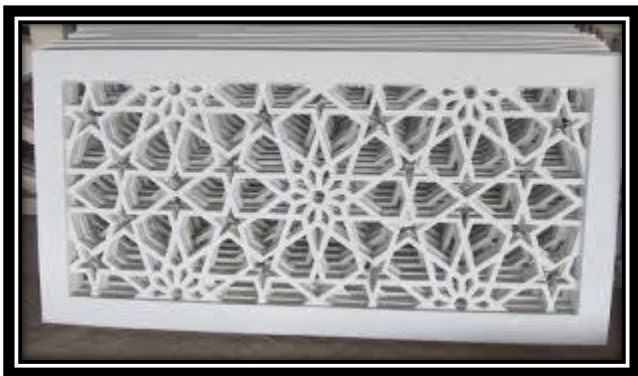
Glass fibre Reinforced Concrete or GRC (sometimes called Glassfibre Reinforced Cement and Glass Fiber Reinforced Concrete or GFRC), and known around the world by various names such as Composite Ciment Verre or CCV, Fiber Beton, Fiber Takviyeli Beton and Glasfaserbeton or GFB, is a mixture of cement, fine aggregate, water, chemical admixtures and alkali resistant glassfibres.

Glassfibre Reinforced Concrete (GRC) is a material which today is making a significant contribution to the economics, to the technology and to the aesthetics of the construction industry worldwide.

Global Glass Fiber Reinforced Concrete (GFRC) is a type of fiber reinforced concrete which consists of a mixture of cement, sand, water, alkali-resistant glass fiber, and concrete. It is mainly used in construction industry for exterior facade panels, piping, decorative non-recoverable formwork and as architectural precast concrete. GFRC is a composite material which is more preferred for external infrastructure due to several advantages such as fire resistance, lightweight, high mechanical strength, aesthetic properties and superior crack resistance.

Market outlook

The GFRC market was valued at USD 1.83 Billion in 2017 and is projected to reach USD 3.32 Billion by 2023, at a CAGR of 10.5% during the forecast period. Increasing demand for fire & weather resistance, design flexibility, dimensional stability, ease of handling and rapid installation is driving the growth of the GFRC market. Increase in the number of construction projects in developed and emerging economies is also contributing to the growth of the GFRC market.

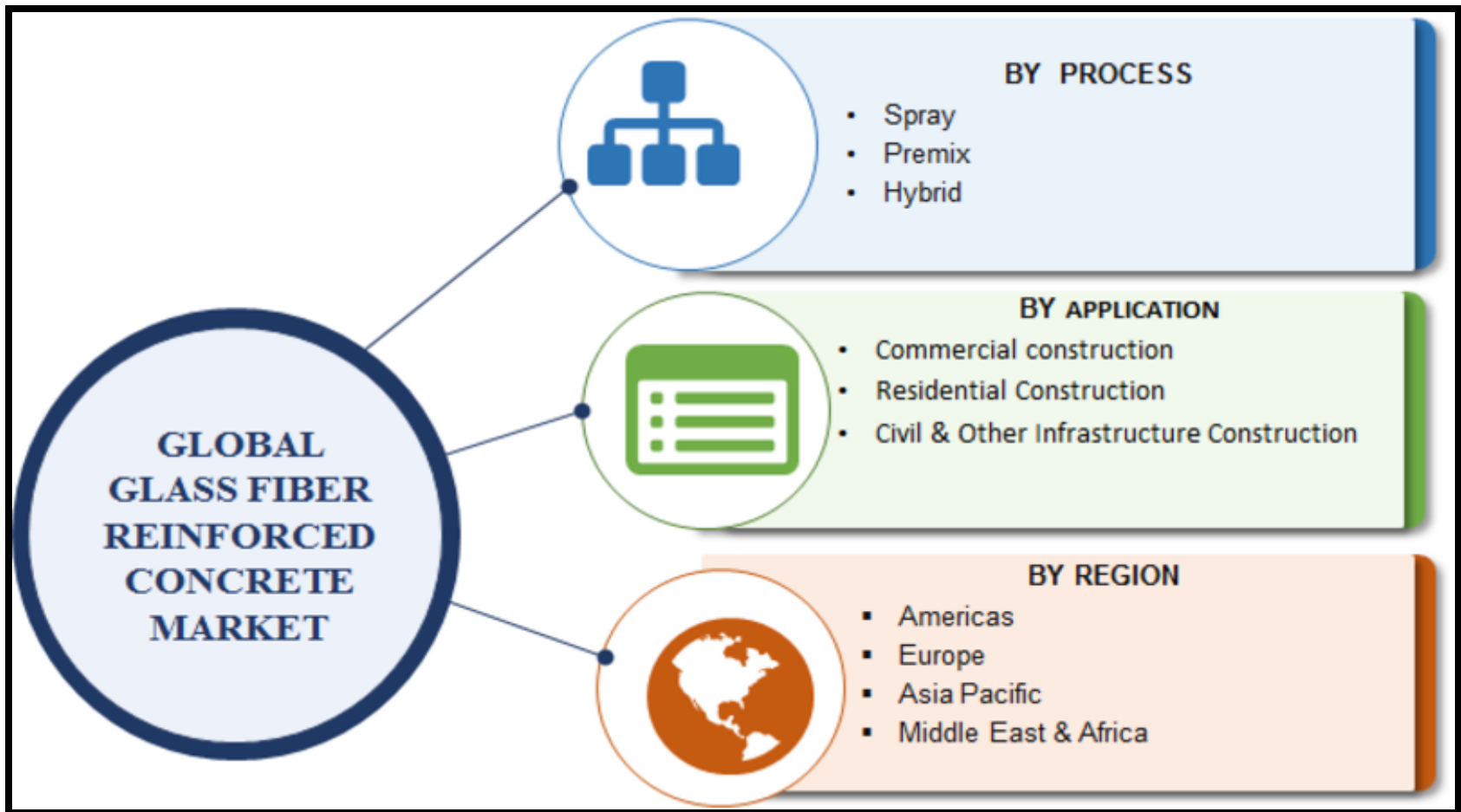


The global glass fiber reinforced concrete market (GFRC) is likely to gain significant momentum in the coming years, owing to the rising concerns about environment conservation. GFRC is produced using recycled and low toxicity raw materials including glass fibers, sand, cement, and water. They offer superior mechanical characteristics as compared to traditional building materials such as steel reinforced concrete (SRC). GFRC is durable, lightweight, and long lasting, thereby reducing the maintenance and transportation costs associated with its usage. The growing awareness regarding the advantages offered by this concrete is estimated to augur well for the growth of the global market.

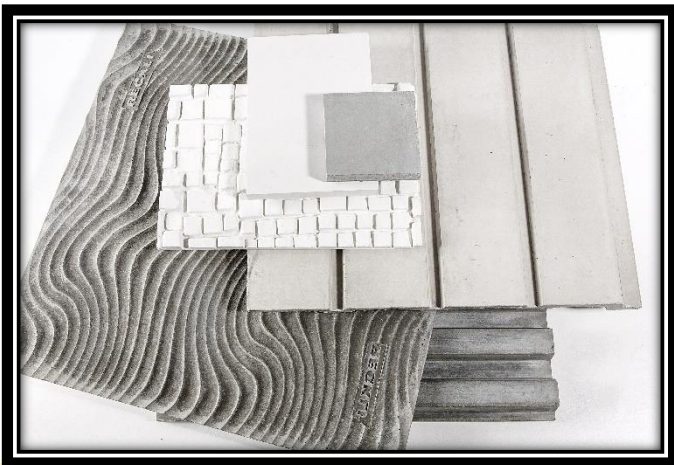


Increase in the number of construction projects in the developed or developing countries act as a driving factor for glass fiber reinforced concrete (GFRC) market. Due to attributes like weather and fire resistance, GFRC is preferred in the construction industry. Furthermore, increasing industrialization, rapid urbanization, changing lifestyle, and growth in spending capacity are some other factors driving the growth of the GFRC market. Industries such as tour & traveling is also fueled because of changing lifestyle of consumers and growth in their spending capacity which drives the hospitality industry. Many hotels and resorts are constructed by using GFRC which helps in the growth of GFRC market.

Segmentation of Glass Fiber Reinforced Concrete (GFRC) Market



The GFRC market has been segmented on the basis of process, application, and region. Based on process, the GFRC market has been classified into spray, premix, and hybrid. The hybrid process segment of the GFRC market is projected to grow at the highest CAGR during the forecast period, in terms of value and volume. The hybrid process is an emerging and advanced technology used for the production of GFRC. This process is expected to lower the labor input, thereby decreasing production cost. Thus, the demand for the hybrid process based GFRC is projected to increase considerably during the forecast period.



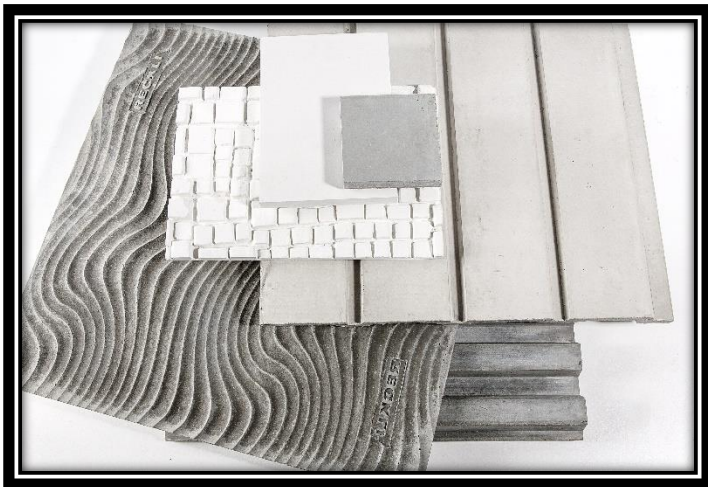
On the basis of process, the market of GFRC has been segmented into spray, premix, and hybrid. The spray process segment is expected to be the largest market segment because of its ultimate performance and flexibility. A large number of end users prefers spray process because of its better performance and usage in different applications in the construction sector. It is a modern method of producing GFRC and can be used as a replacement for traditional hand sprayed production methods. During the mixing process, the fiber is added to the matrix and is pumped to a spray gun. Sprayed GFRC offers superior ductility which enables constructors to use panels of different sizes freely.



On the basis of geography, the global GFRC market can be segmented into North America, Asia Pacific, Latin America, Europe, and the Middle East and Africa. The Europe region is estimated to expand at a brisk pace over the forthcoming years, with the U.K. being a major revenue contributor. The growth of this region can be attributed to the rising environmental concerns and the robust growth of the construction industry. Asia Pacific and Latin America are likely to flourish owing to the increasing mining and construction activities and rising disposable income of consumers. The market for GFRC in North America is anticipated to expand at a promising rate in the near future.



The major key players are Willis Construction Co., Inc. (U.S.), Fibrex Construction Group (UAE), Formglas Products Ltd. (Canada), Clark Pacific (U.S.), Ultratech Cement Ltd. (India), Betofiber A.S. (Turkey), BB Fiberbeton (Denmark), Nanjing Beilida New Material System Engineering Co., Ltd. (China), Stromberg Architectural (U.S.), Low & Bonar (U.K.) and Loveld (Belgium).



Major Queries/Questions Answered in the Report?

- 1. What is Glass Reinforced Concrete (GRC) Manufacturing industry ?**
- 2. How has the Glass Reinforced Concrete (GRC) Manufacturing industry performed so far and how will it perform in the coming years ?**
- 3. What is the Project Feasibility of Glass Reinforced Concrete (GRC) Manufacturing Plant ?**
- 4. What are the requirements of Working Capital for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**

- 5. What is the structure of the Glass Reinforced Concrete (GRC) Manufacturing Business and who are the key/major players ?**
- 6. What is the total project cost for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?**
- 7. What are the operating costs for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**
- 8. What are the machinery and equipment requirements for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**

- 9. Who are the Suppliers and Manufacturers of Plant & Machinery for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**
- 10. What are the requirements of raw material for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**
- 11. Who are the Suppliers and Manufacturers of Raw materials for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?**
- 12. What is the Manufacturing Process of Glass Reinforced Concrete (GRC)?**

- 13. What is the total size of land required for setting up Glass Reinforced Concrete (GRC) Manufacturing plant ?**
- 14. What will be the income and expenditures for Glass Reinforced Concrete (GRC) Manufacturing Business?**
- 15. What are the Projected Balance Sheets of Glass Reinforced Concrete (GRC) Manufacturing plant ?**
- 16. What are the requirement of utilities and overheads for setting up Glass Reinforced Concrete (GRC) Manufacturing plant?**
- 17. What is the Built up Area Requirement and cost for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?**

- 18. What are the Personnel (Manpower) Requirements for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?**
- 19. What are Statistics of Import & Export for Glass Reinforced Concrete (GRC)?**
- 20. What is the time required to break-even of Glass Reinforced Concrete (GRC) Manufacturing Business?**
- 21. What is the Break-Even Analysis of Glass Reinforced Concrete (GRC) Manufacturing plant?**
- 22. What are the Project financials of Glass Reinforced Concrete (GRC) Manufacturing Business?**

- 23. What are the Profitability Ratios of Glass Reinforced Concrete (GRC) Manufacturing Project?**
- 24. What is the Sensitivity Analysis-Price/Volume of Glass Reinforced Concrete (GRC) Manufacturing plant?**
- 25. What are the Projected Pay-Back Period and IRR of Glass Reinforced Concrete (GRC) Manufacturing plant?**
- 26. What is the Process Flow Sheet Diagram of Glass Reinforced Concrete (GRC) Manufacturing project?**

27. What are the Market Opportunities for setting up Glass Reinforced Concrete (GRC) Manufacturing plant?

28. What is the Market Study and Assessment for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?

29. What is the Plant Layout for setting up Glass Reinforced Concrete (GRC) Manufacturing Business?

Table of Contents of the Project Report

Our Detailed Project Report contains

- **Introduction**
- **Properties**
- **Uses & Applications**
- **List of Plant & Machineries**
- **Miscellaneous Items and Accessories**
- **Instruments, Laboratory Equipments and Accessories**
- **Electrification, Electric Load and Water**
- **Maintenance, Suppliers/Manufacturers of Plant and Machineries**

- **Process of Manufacture**
- **Flow Sheet Diagram**
- **List of Raw Materials**
- **Availability of Raw Materials**
- **Requirement of Staff & Labour**
- **Skilled & Unskilled Labour**
- **Requirement of Land Area**
- **Built up Area**
- **Plant Layout**

Project Financials

• Project at a Glance	Annexure
• Assumptions for Profitability workings	1
• Plant Economics.....	2
• Production Schedule.....	3
• Land & Building.....	4
Factory Land & Building	
Site Development Expenses	

- **Plant & Machinery.....5**
 - Indigenous Machineries**
 - Other Machineries (Miscellaneous, Laboratory etc.)**

- **Other Fixed Assets.....6**
 - Furniture & Fixtures**
 - Pre-operative and Preliminary Expenses**
 - Technical Knowhow**
 - Provision of Contingencies**

- **Working Capital Requirement Per Month.....7**
 - Raw Material**
 - Packing Material**
 - Lab & ETP Chemical Cost**
 - Consumable Store**

- **Overheads Required Per Month and Per Annum.....8**
 - Utilities & Overheads (Power, Water and Fuel Expenses etc.)**
 - Royalty and Other Charges**
 - Selling and Distribution Expenses**

- **Salary and Wages9**

- **Turnover Per Annum10**

- **Share Capital.....11**
 - Equity Capital**
 - Preference Share Capital**

- **Annexure 1 :: Cost of Project and Means of Finance**
- **Annexure 2 :: Profitability and Net Cash Accruals**
 - **Revenue/Income/Realisation**
 - **Expenses/Cost of Products/Services/Items**
 - **Gross Profit**
 - **Financial Charges**
 - **Total Cost of Sales**
 - **Net Profit After Taxes**
 - **Net Cash Accruals**

• **Annexure 3 :: Assessment of Working Capital requirements**

- **Current Assets**
- **Gross Working Capital**
- **Current Liabilities**
- **Net Working Capital**
- **Working Note for Calculation of Work-in-process**

• **Annexure 4 :: Sources and Disposition of Funds**

- **Annexure 5 :: Projected Balance Sheets**

- **ROI (Average of Fixed Assets)**
- **RONW (Average of Share Capital)**
- **ROI (Average of Total Assets)**

- **Annexure 6 :: Profitability Ratios**

- **D.S.C.R**
- **Earnings Per Share (EPS)**
- **Debt Equity Ratio**

- **Annexure 7 :: Break-Even Analysis**

- **Variable Cost & Expenses**
- **Semi-Variable/Semi-Fixed Expenses**
- **Profit Volume Ratio (PVR)**
- **Fixed Expenses / Cost**
- **B.E.P**

- **Annexure 8 to 11 :: Sensitivity Analysis-Price/Volume**

- **Resultant N.P.B.T**
- **Resultant D.S.C.R**
- **Resultant PV Ratio**
- **Resultant DER**
- **Resultant ROI**
- **Resultant BEP**

- **Annexure 12 :: Shareholding Pattern and Stake Status**

- **Equity Capital**

- **Preference Share Capital**

- **Annexure 13 :: Quantitative Details-Output/Sales/Stocks**

- **Determined Capacity P.A of Products/Services**

- **Achievable Efficiency/Yield % of Products/Services/Items**

- **Net Usable Load/Capacity of Products/Services/Items**

- **Expected Sales/ Revenue/ Income of Products/ Services/ Items**

- **Annexure 14** :: **Product wise Domestic Sales Realisation**
- **Annexure 15** :: **Total Raw Material Cost**
- **Annexure 16** :: **Raw Material Cost per unit**
- **Annexure 17** :: **Total Lab & ETP Chemical Cost**
- **Annexure 18** :: **Consumables, Store etc.**
- **Annexure 19** :: **Packing Material Cost**
- **Annexure 20** :: **Packing Material Cost Per Unit**

- **Annexure 21** :: **Employees Expenses**
- **Annexure 22** :: **Fuel Expenses**
- **Annexure 23** :: **Power/Electricity Expenses**
- **Annexure 24** :: **Royalty & Other Charges**
- **Annexure 25** :: **Repairs & Maintenance Expenses**
- **Annexure 26** :: **Other Manufacturing Expenses**
- **Annexure 27** :: **Administration Expenses**
- **Annexure 28** :: **Selling Expenses**

- **Annexure 29 :: Depreciation Charges – as per Books (Total)**
- **Annexure 30 :: Depreciation Charges – as per Books (P & M)**
- **Annexure 31 :: Depreciation Charges - as per IT Act WDV (Total)**
- **Annexure 32 :: Depreciation Charges - as per IT Act WDV (P & M)**
- **Annexure 33 :: Interest and Repayment - Term Loans**
- **Annexure 34 :: Tax on Profits**
- **Annexure 35 :: Projected Pay-Back Period and IRR**

Tags

#Glass_Fibre_Reinforced_Concrete, #GFRC, #GRC, #Glass_Fibre_Reinforced_Concrete_(GRC), Glass Fibre Reinforced Concrete, Glass Fiber Reinforced Concrete Pdf, #GRC_Manufacturing, Glass Reinforced Concrete Manufacturing, Manufacture of Glass Reinforced Concrete (GRC), Production of Glass Fibre Reinforced Cement, GRC/GFRC Production, Glass Fibre Reinforced Concrete Manufacture, Glass Fiber Reinforced Concrete or GFRC, #Manufacture_of_GRC, Glass-Fiber Reinforced Concrete (GRC - GFRC), Manufacturing Process of Glass Fibre Reinforced Concrete (GRC), #Glass_Fiber_Reinforced_Concrete_Products, GRC Manufacture, #GFRC_(Glass_Fiber_Reinforced_Concrete), GFRC Fiber-Concrete or Fiber-Concrete, #Manufacture_of_Glass_Reinforced_Concrete_(GRC), Application of GRC, GRC Products Manufacture in India, GRC Manufacturing Business, Construction Material, Commercial Production of Glass Fiber, Glass Reinforced Concrete Manufacture in India, Glass Fiber Reinforced Concrete Business, GRC Production, Manufacturing of GRC, Manufacture of Glass fibre Reinforced Concrete Product, Detailed Project Report on Glass Fibre Reinforced Concrete Manufacture, #Project_Report_on_GRC_Manufacturing_Business, Pre-Investment Feasibility Study on GRC/GFRC Production, Techno-Economic feasibility study on GRC Manufacturing Business, Feasibility report on Glass Fibre Reinforced Concrete Manufacture, Free Project Profile on GRC/GFRC Production, Project profile on GRC Manufacturing Business, Download free project profile on Glass Fiber Reinforced Concrete Business

Niir Project Consultancy Services (NPCS)
can provide Detailed Project Report on
Glass Reinforced Concrete (GRC).
Production of GRC or GFRC.
Glass Fibre Reinforced Concrete
(GRFC) Industry

See more

<https://bit.ly/2XvuBw3>

<https://bit.ly/32dcmKj>

<https://bit.ly/2JelqpV>

<https://bit.ly/2Xuwnxq>



Contact us

NIIR PROJECT CONSULTANCY SERVICES

106-E, Kamla Nagar, Opp. Spark Mall,
New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886, 8800733955

Mobile: +91-9811043595

Fax: +91-11-23845886

Website : www.entrepreneurindia.co , www.niir.org

Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

<https://goo.gl/VstWkd>



Follow us



➤ <https://www.linkedin.com/company/niir-project-consultancy-services>



➤ <https://www.facebook.com/NIIR.ORG>



➤ <https://www.youtube.com/user/NIIRproject>



➤ <https://plus.google.com/+EntrepreneurIndiaNewDelhi>



➤ https://twitter.com/npcs_in



➤ <https://www.pinterest.com/npcsindia/>





**Thank
You**

For more information, visit us at:

www.niir.org

www.entrepreneurindia.co



www.entrepreneurindia.co