Executive Summary

The Nataraja Foundation
Mumbai

The Vivekananda Secondary Education & Skills development Megaproject

(Skill development + Secondary schools)

A Hybrid scheme

Presentation to Ministry of HRD, Govt. of India

27th Jan ' 2019

Rev00

Acknowledgements

Vivekananda Secondary Education & Skill Development Megaproject

The Design Lab (Nataraja Foundation) would like to thank the following senior individuals / organizations for their advice & published ideas. They have helped to improve this project

1. Mrs. Susheila Naravane (Project Mentor)
2. Mr. S Natarajan (Former Head of Academics, Military School Bangalore)
3. Late. Mr. RL Kumar (Chief Project Architect … Concept of elegant, low cost architecture within 30,000 hub schools)
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23. Mr. Sachin Charpe (Business Executive)
24. Ms. Chitra Ganapathy (Language Specialist)
25. Dr. Arvind Panagariya (Former Vice Chairman, NITI Aayog) … Published article on Farmer distress
26. Prof. Sugata Mitra, Self Organized Learning Environment (SOLE) Project … published ideas

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Secondary Education
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Vivekanand Secondary Education & Skills development Megaproject

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What are the Major problems within India's School system ?

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1. Money is reaching Schools 6 -7 months late

- ❑ This delays in Funds arrival in schools is lowering the productivity of 192 Million students and 5.23 Million teachers across India

2. Very High Dropout Rates

- ❑ India currently has a shortage of **6,21,805** Secondary schools
- ❑ About **39 %** of children drop out of school after class V. Another **50 %** + drop out by class VIII.
- ❑ In all upto **89 %** of children drop out of school before Class IX as there are not enough Secondary schools to go to

3. Poor Teacher Quality

- ❑ 2007 NUEPA* data states that 46 % of India's teachers have not studied beyond class XII and 25 % have not studied beyond class X

4. Huge shortage of qualified teachers :

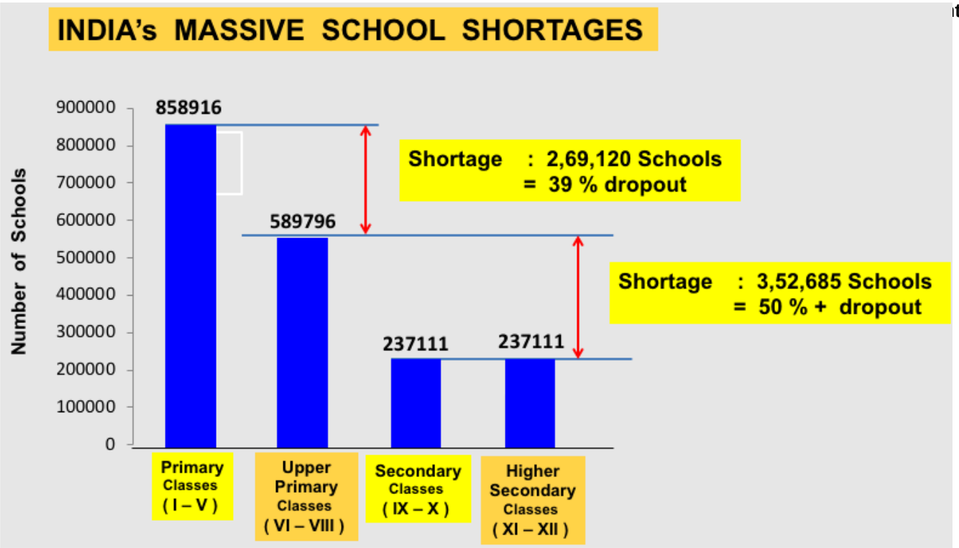
According to official estimates India has a huge shortage of qualified teachers :

- ➢ Primary School (Teacher Shortage) : **9,07,585**
- ➢ Secondary school (Teacher Shortage) : **1,06,905**

These are official estimates.
Actual shortages are much higher

5. Low quality teachers … leading to Women's safety issues

- ❑ Teacher shortages are leading to the recruitment of Poorly qualified people. This is adversely affecting Students Moral Standards
- ❑ Neglect of Teachers over the last 50 years … Is resulting in a rise in violent crimes against women in India



Sources : Educational statistics at a glance, 2011; MHRD GoI, U-DISE, NUEPA, Nataraja Foundation Research

*. NUEPA 2007 by Arun C Mehta . The number of teachers then was 4.7 Million. Today in 2019 India has 5.23 Million teachers

6. Very Poor Learning Outcomes

- ❑ ASER Report 2019 states that on a National basis 56 % of class VIII students cannot do basic maths and 27 % of students cannot read

7. Lack of Focus on Secondary Education & Skills development

- ❑ Lack of Focus has resulted in a huge shortage of **119** million Skilled people across various industries

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Proposed Solution … The Vivekanand Secondary Education & Skills development Megaproject

Vivekananda Secondary Education & Skill Development Megaproject

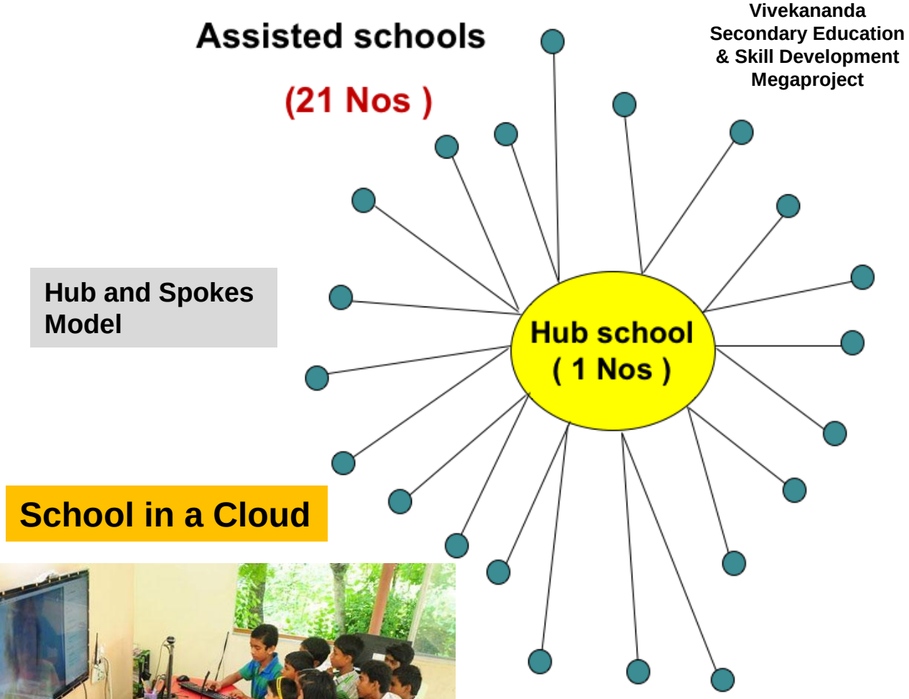
Project is designed to Solve several problems simultaneously

Short Term Solutions :

1. **Six month to Six Seconds Project …** Direct fund transfer & Automatic Budget approval system improves learning outcomes in 8,58,916 schools
2. **Vivekanand School in a Cloud**
   - ❑ Project will connect **6,21,805** Existing schools that lack Upper Primary & Secondary education facilities using 4 G / 5 G Telecom Technologies … within 3 years

Medium Term Solutions :

3. **Construction of 30,000 New Secondary Schools … to Reduce Dropout rates**
   - ❑ Project will construct **30,000** New Secondary Schools & Skills development centers … as Hub Schools
   - ❑ Each school will share its resources with **21** existing schools that lack facilities. **30,000** New Hub schools will therefore cover … **6,21,805** additional locations
   - ❑ Entire system will run on Digital Vouchers … to provide Free education to over **150** Million children. Poorest children will be preferred for admission to hub schools
4. **New Schools to have " User Centric " design to address all stakeholders**
   - ❑ Project will Train existing staff & **2.2** Million additional Teachers & Skills instructors
   - ❑ World class facilities to be built for Teachers
   - ❑ Learning outcomes in students to be improved with Enriched Learning Content / tools
5. **Combining Secondary Education with Skills development**
   - ❑ Skills Training (300 Courses) will be introduced after class VIII to create Job ready candidates by class XII like they do in Canada



School in a Cloud

Vivekanand Project will provide high quality education totally free of cost to over 150 million children .

Digital Vouchers will ensure that the Poorest children are preferred for admission to Hub schools

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How will Social Justice be ensured … to Include the Poorest children ?

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Digital Education Vouchers to Ensure Social Justice & Inclusion :

- A total of **18** million Education vouchers will be issued after an aptitude test . All children in India will be eligible to take the test

- Voucher Award Criteria
  - Will be based on a simple aptitude test for each age level
  - Vouchers will be designed to give **75 %** Preferential School admission to Children from Poor families
  - **25 %** of Children from Higher income groups will be on Fractional vouchers

- Vouchers will fully finance the operations of **30,000** New Schools + Teacher sharing programme to cover **6,21,805** additional SSA schools

- Each voucher will actually educate approx. **22** children. Coverage cost per student …lowest on a global basis

- Cost of coverage per child is :
  - Rs **7,319** (for Day schools)
  - Rs **11,927** (when hub school is Fully Residential and assisted schools are day schools)

- Digital Education Vouchers … To Ensure Transparency in School Operations. Will be used to settle all Payments

Digital Vouchers will enable Economic Targeting of benefits … to the Poorest families and enable the ending of all reservations in India by 2032

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Special Focus on Re-Skilling Marginal Farmer Families…Taluka level and below (1)

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Understanding the Problem of Rural Distress & Farmer Suicides in India

	% Share of Agriculture in GDP	% Share of Agriculture in Total Employment
United States	1.0 %	2.0. %
Japan	1.0 %	3.5 %
France	1.5 %	3.0. %
United Kingdom	0.5 %	1.0. %
Taiwan	1.6 %	5.0 %
South Korea	2.0 %	5.0 %
India	15.2 %	45.0 %

A large proportion of this **45 %** of Total Employment in the Country is provided by Farms lesser than **1** Hectare in size (68 % of Operating Farmlands)

Source : Dr. Arvind Panagariya , Confront the Harsh Reality, Times of India, 10th January ' 2019

The Numbers show why even after Spending Rs 2,20,000 Crores each year on Farm & Rural Subsidies, Farmers are still economically very weak

The only way to Resolve this is to Re-Skill 80 % of Marginal farmers … and move them out of Agriculture into other Rural Professions as suggested by Dr. Arvind Panagariya

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Special Focus on Re-Skilling Marginal Farmer Families…Taluka level and below (2)

Vivekananda Secondary Education & Skill Development Megaproject

Need for Large scale Re-Skilling in Rural India

- 45 % of the Total workforce in India is employed in Farming which constitutes 15.2 % of GDP
- 68.5 % of the Land holding in Rural areas is less than One Hectare
- Given this fact (very large number of people working on very small land holdings)… the output per farmer is less than 30 % of national average per Capita GDP

Vivekanand Education Megaproject Plan

As advised by Dr. Arvind Panagariya (Former Vice Chairman NITI Aayog) , the project will Re-skill Marginal farmer families and transition them to other professions within the Rural economy

By re - skilling Millions of marginal farmers, the Vivekanand project will transform the rural economy and lift per capita GDP

Proposed Sector Wise action plan for Re-skilling Marginal Farmer families

Proposed Vocations Re-Skilling Marginal Farmers	Proposed Percentage of Rural Population for Re-Skilling
Fruit Production	5 %
Food Processing	5 %
Construction	25 %
Restaurants	5 %
Retail	5 %
Check Dams & Fisheries	5 %
Manufacturing	20 %
Marketing & Distribution	5 %
Tourism	5 %
Forestry / Grasslands & Advanced Water Technologies	10 %
Animal Husbandry & Dairy Farming	10 %
TOTAL	**100 %**

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Project Socio - Economic benefits … and Investment Multipliers

Vivekananda Secondary Education & Skill Development Megaproject

1. Project will lift **300** Million people out of poverty over the next 15 years.
2. It increases the efficiency of 192 Million children and 5.23 Million teachers within 8,58,916 existing schools
3. It uses 4G / 5G Telecom technologies to connect 6,21,805 schools which today do not have secondary education facilities
4. It will prevent 150 Million children from dropping out of School
5. It will produce 150 Million Skilled workers by 2032 … as Schools will also be Skilling hubs
6. It will create **2.2** Million New Teachers jobs and another **4** Million New jobs in industries supporting the education sector
7. It will earn US $ **6.8** Billion each year in Foreign Exchange after 2032
8. It will fundamentally improve Construction quality & create a New Trillion dollar construction industry in **6,00,000** villages across India with low cost, elegant Vernacular architecture

Vivekanand Project will have an investment Multiplier impact of US $ 615 Billion on the Indian Economy while adding over US $ 3 Trillion to GDP over the next 15 years

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Where is the money … to <u>build</u> 30,000 New Schools ?

Vivekananda Secondary Education & Skill Development Megaproject

- Education Megaproject requires **14.95** Lakh crores over the next **10** years.

- **12 – 14** different Sources of finance have been identified to potentially raise Rs **100.55** lakh crores :

A. Non Tax Based Financing

- ✓ 3 % of Forex Reserves
- ✓ Bidding Rounds for School in a cloud
- ✓ Un-Utilized Funds with Various Ministries
- ✓ Un-Utilized Development Aid (World Bank, ADB etc) :
- ✓ Coordinated CSR Funding (Securitizaion facility)
- ✓ Equity Infusion by 30,000 Private Parties in PPP bidding rounds
- ✓ Calibrated 7.3 % dis-investment in PSUs
- ✓ Un-Utilized Secondary & Higher Education Cess

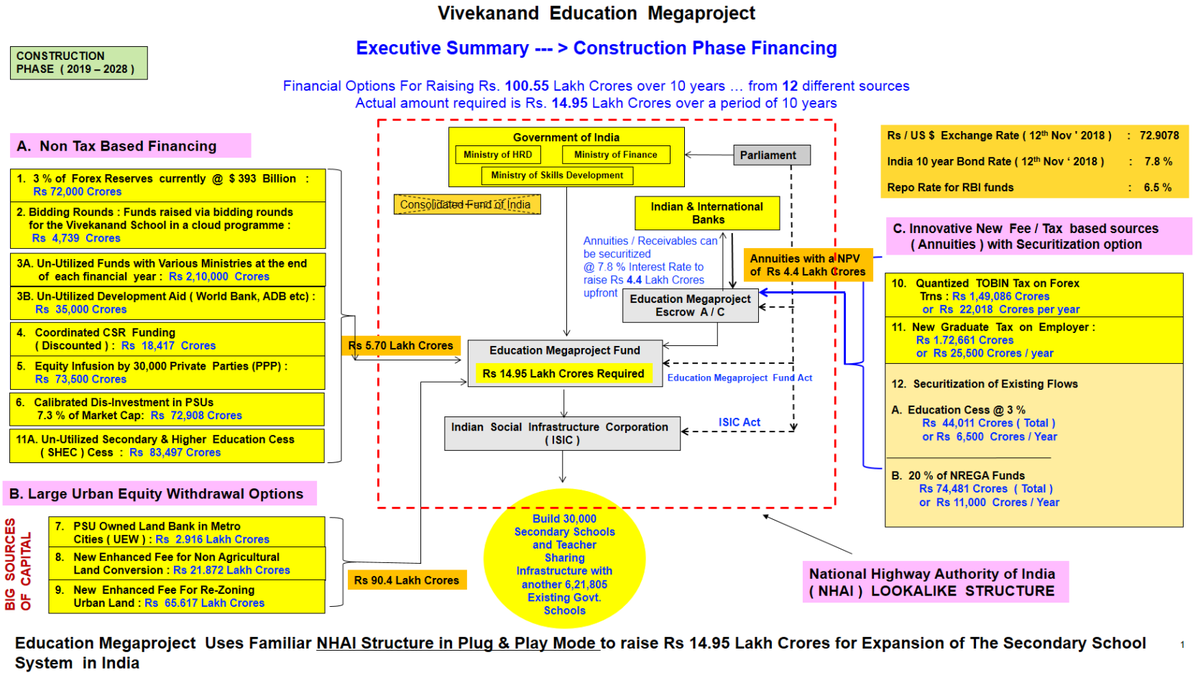
B. Large Urban Equity Withdrawal Options

- ✓ Sale / Long lease of PSU owned land bank in Metro cities
- ✓ New Enhanced Fee for Non Agricultural Land Conversion
- ✓ New Enhanced Fee For Re-Zoning urban Land

C. Innovative New Fee / Tax based sources

- ✓ Quantized TOBIN Tax on Forex transactions
- ✓ New Graduate Tax on Employers
- ✓ Securitization of Existing Flows for Rural schools … Education Cess and 20 % NREGA funds

Financing Sources for Construction of 30,000 New Schools + Infrastructure to assist 6,21,805 existing Schools



<u>Reference</u> :

Please refer **16** page Capex financing note for detailed description of financial sources and structuring options

Adequate financing exists. 10 year planning horizon provides <u>huge flexibility</u> for Financial innovation

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Where is the money... to Operate 30,000 New Schools ?

Vivekananda Secondary Education & Skill Development Megaproject

- **7- 8** innovative Pools of capital have been identified to potentially raise Rs **2.21** lakh crores each year for financing Opex

A. Non Tax Based Financing

- ✓ Content outsourcing / Online Tutions … Businesses run by teachers
- ✓ Fees from Fractional Vouchers / Foreign students on 150 % vouchers
- ✓ Coordinated CSR Funding (All India) on yearly contribution basis … Starting in 2029
- ✓ Yearly rent from Re-developed and leased PSU land banks

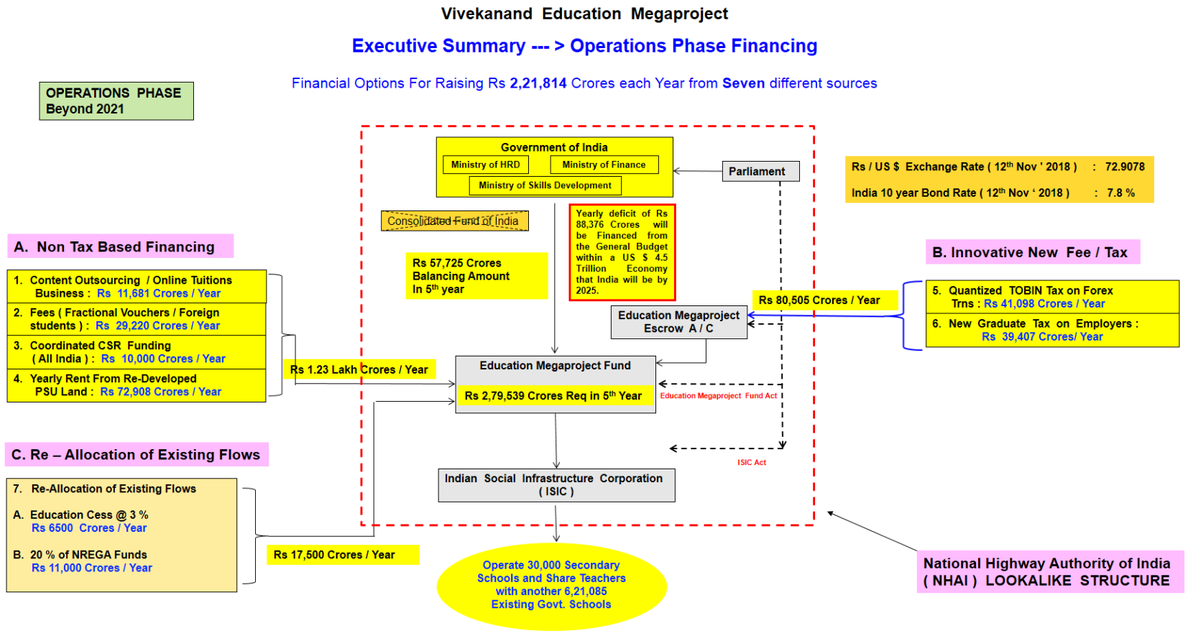
B. Innovative New Fee / Tax

- ✓ Quantized Tobin Tax on foreign transactions each year ... Starting in 2029
- ✓ Graduate Tax on Employers each year … Starting in 2029

A. Re-Allocation of Existing Flows

- ✓ 3 % Education Cess each year … Starting in 2029
- ✓ 20 % NREGA funds for Rural schools each year … Starting in 2029

Financing Sources for Operation of 30,000 New Schools + Sharing Teachers with 6,21,805 Existing Schools



Education Megaproject uses familiar NHAI Structure in plug & play mode to raise Rs 2.218 Lakh crores from 7 innovative sources each year. Balancing amount required is small within a US $ 4.5 Trillion Economy that India will be in 2025

Reference :

Please refer **9** page Operations financing note for detailed description of financial sources and structuring options

Operating funds will not be a problem in a US $ 4.5 Trillion economy that India will be by 2025.

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Project Structure & PPP scheme …

Vivekananda Secondary Education & Skill Development Megaproject

Megaproject's innovative financing mechanism Provides 85 % of Capex Financing and in addition provides 70 % of Operating Costs by means of Voucher payments to School Concession Winners.

After construction, Operational control is handed over to State Governments. State Govts conduct the bidding rounds and award concessions.

Central Govt remains project owner

Union Government

(Ministry of Finance) (Ministry of HRD)

Education Megaproject Fund

(Controlled by Ministry of HRD)

Voucher Payments Cover All School Operation Costs Including 20 % ROE to Concessionaire

PPP Scheme is designed to allow Teacher Groups to Bid for Schools At Minimum Upfront Capex

85 % of Project Cost As Central Govt. Equity

(Please refer to Project Capex Financing Document for Plan to raise Rs 14.95 Lakh Crores)

Please refer to Project Opex Financing Plan that Accompanies This presentation

29 State and 7 Union Territory Governments

Bidding Rounds

Concession Award to winners

Digital Control System for Schools / Concession Agreement with Digital Protocols

Schools Operating Data

Prospective Bidders for Schools :

1. Teacher Groups (Preferred Bidders)
2. Education Trusts
3. Private Sector School Management Companies

Operate BOOT Project

15 % of Project Cost (Debt + Equity)

Each one of the 25,500 Day Schools will cost

Rs 28.6 Crores / Unit

Each one of the 4,500 Fully Residential Schools will cost

Rs 75.74 Crores / Unit

Architect Firms Six Different School Designs

EPC Construction Contractors

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What will Success Look Like ?

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Success means … Achieving the following Strategic objectives :

1. Improved Efficiency in 8,58,916 schools … As money reaches schools SIX months earlier
2. Connecting 6,21,805 schools with 4G / 5G Telecom Networks by 2023 … For providing Secondary education
3. Improved learning outcomes in Students as Enriched learning content & tools are used
4. Increasing Annual investment in Secondary Education from Rs **4,215** Crores … to Rs **1,45,000** Crores
5. Maintaining these Capex levels at Rs **1,45,000** Crores levels each year … for **10** years starting in 2019
5. Combining Secondary Education + Skills development after Class VIII
6. Producing Job ready students after Class XII
7. Transforming the Rural Economy by Re-training 80 % of Marginal farmers … and moving them out of Farming
8. Making the Teaching profession attractive … for qualified people
9. Reduced levels of violent crime against women ... Through improved Teacher quality
10. Adding **3** Trillion US Dollars to Indian GDP … by Constructing 30,000 Secondary Hub schools by 2028-29

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Vivekanand Education Megaproject … Look and Feel (2028-29)

- Low cost, elegant designs @ Rs **1750** / Sq ft to be executed at 30,000 New Secondary School locations across 29 states & 7 Union territories
- Assisted schools at 6,21,805 existing locations to get similar architecture as part the Vivekanand school in a cloud
- All materials to be sourced locally … Low carbon footprint
- Project to take elegant Architecture to over **6,00,000** villages … to improve construction quality in rural India
- Project will provide stimulus to New Vernacular construction Industry … to create a Trillion dollar business in Low cost housing
- Vernacular construction business will create **15** Million New construction Jobs by **2028**

Projects by Architect : Late Mr. RL Kumar
Pictures Courtesy : Centre of Vernacular Architecture Trust , Bangalore
www.vernarch.com

Project will Define & Popularize a New, Low Cost & Elegant Vernacular Architecture Across India

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Support required from Govt. of India …

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The Vivekanand Project needs the following support from Govt. of India

- ❑ Approval of project Capex / Opex financing plans … in consultation with Ministry of Finance
- ❑ Joint sponsorship by Ministry of HRD and Ministry of Skills development … for the Vivekanand Project
- ❑ Support for time bound action plan to execute the Vivekanand Secondary Education and Skills development megaproject

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Vivekanand Education Megaproject … Design Team

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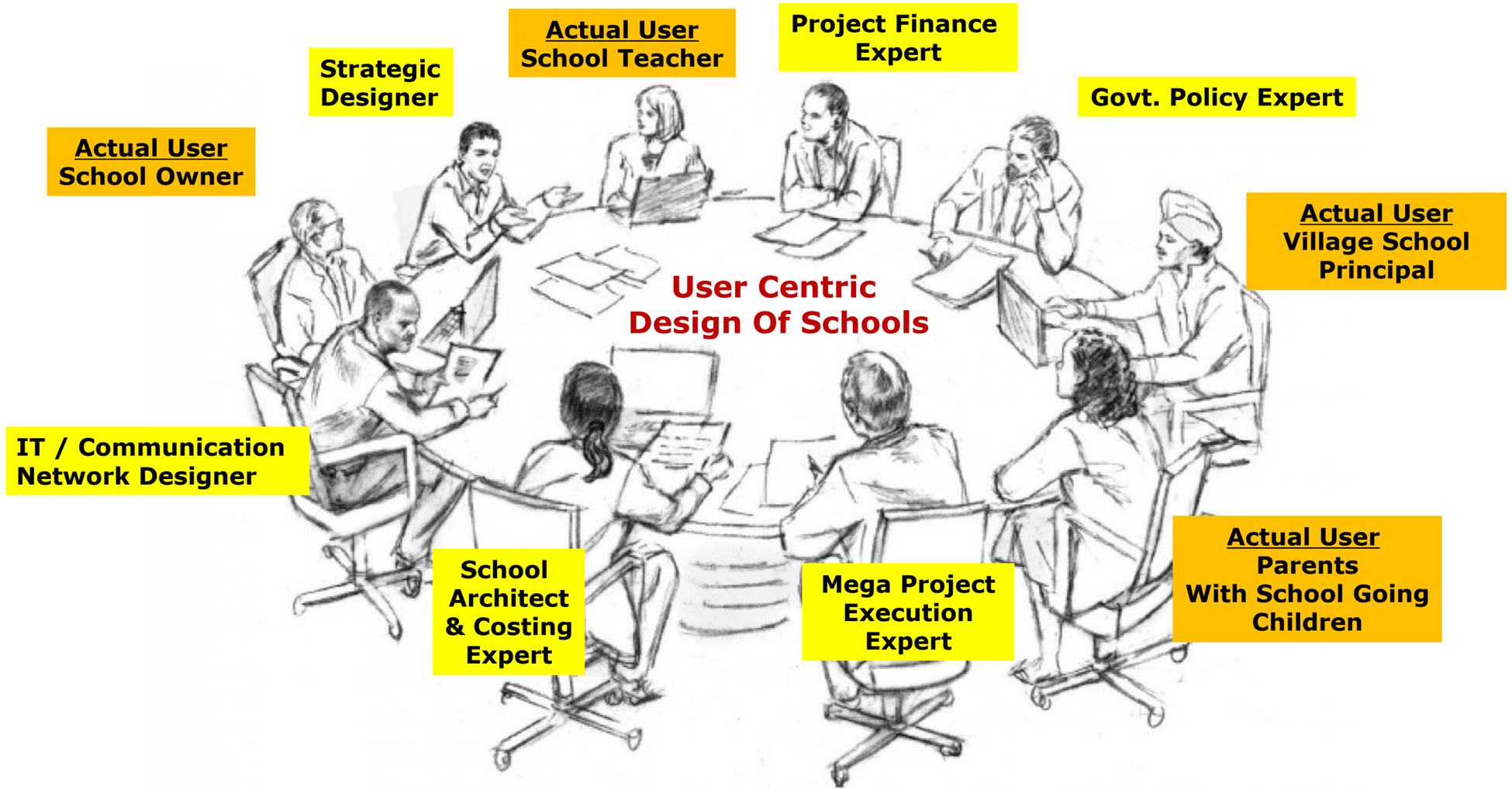

A Number of other Specialists were also consulted during the Design Exercise

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About the Designer

Ashish Puntambekar is a trustee of the Nataraja Foundation and heads its Design Lab. He has over 25 years of experience working with some of the finest talent globally in the Energy and Infrastructure sectors and specifically in the area of large Infrastructure project design and design thinking where he is a specialist.

He has been Lead Designer for the Defence Industrial Corridor (DIC) project which has recently received an investment commitment of Rs 40,000 Crores from the Govt of India in the Feb, 2018 union budget. The Prime Minister has personally launched this massive Defence equipment manufacturing project and two large DICs will now to be built at Bundelkhand and along the Chennai – Bangalore route in project mode. Likely commissioning date of both DICs is Jan ' 2027.

Besides the Defence project, he has recently been the convenor of an International Advisory Board (IAB) with Harvard Economists, Former G – 7 Finance Ministers, Foreign Ambassadors and Defence Analysts as members. His expertise in the Geopolitics of Petroleum, his deep understanding of Middle East history and politics and his knowledge of technology shifts in the Energy Industry have earned him a name in the energy analyst community internationally. He is also an expert invitee at the Asian Development Bank (ADB) where his work on Urban Equity Withdrawal based financing has been presented. He has also been an invitee speaker on TEDx to talk about ideas that can triple the size of the Indian economy by 2030-32. Apart from this he has written articles on Geopolitics, Energy Security & Military - Industrial strategy for the Indian Defence Review magazine.

Ashish has worked in a number of diverse roles. He started his career as a project engineer working in a large petrochemicals complex and then moved on to various increasingly senior engineering, business and senior management positions on assignments involving Power plants , Ports, LNG Terminals , Oil Refineries and Pipelines. He has also worked as an Energy Derivatives Trader for a period of 5 years where he has traded crude oil flat price and petroleum product derivatives on all major commodity exchanges and OTC Markets / Investment banks around the world.

Over the years, he has designed several multi billion dollar projects which are under active consideration by the Indian Government :

1. The Defence Industrial Corridor Project
2. The Vivekanand Secondary Education & Skills Development Megaproject
3. The Indian East Coast Energy Corridor Project
4. The Mumbai Megaproject – Eastern Waterfront and Artificial Islands
5. The Indian Healthcare Megaproject (Under development)
6. The Ganges River Basin Re-Juvenation Megaproject (Under development)

Strategic Objective : Ashish is the initiator and founder of the Construct India Mission which has received official sponsorship from the Ministry of Commerce, Govt. of India. Through his work and ideas the author seeks to make India the world's largest construction market. The focus therefore is not just on robust project design, but also on financial innovation which is critical to bring these large projects to life … and in the process create approx. 65 Million New Jobs in India by 2027.

Of all the projects he has written, the Vivekanand Secondary Education and Skill Development Megaproject is his flagship and favourite project. This is the project that can transform not just India, but the whole of South Asia through its broad and expansively tolerant philosophy which comes from Swami Vivekanand.

Ashish has a Bachelors degree in Mechanical Engineering and a Masters degree in International Business.

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