The Indian Primary & Secondary Education Megaproject

Financial Structuring, Financing & Project Control Concepts

High Quality Education to Upto 126 Million Children Simultaneously
Absolutely Free Of Cost

A Innovative financial solution

to implement

" The Right Of Children To Free & Compulsory Education Act ' 2009 "

The Nataraja Foundation

Project Proposal

Submitted to

The National Knowledge Commission & Ministry of HRD
Govt. Of India

Revision 04

25th July ' 2011

The Indian Primary & Secondary Education Megaproject

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EDUCATION MEGAPROJECT FINANCING

The section describes the projects financial structure and the 14 different different sources of finance that the project calls on within the specified financial structure in the Construction and Operations Phases.

1.0 EDUCATION MEGAPROJECT FINANCING

1.1 FINANCIAL INNOVATION : THE NEED FOR NEW STRUCTURES

The education megaproject has a financing strategy which takes due notice of the Government of India's limitations and budgetary constraints. The strategy therefore is to go for innovative structures that will make minimal demands on current sources of finance while simultaneously opening up new financing options and structures to create a benchmark project for other countries to follow.

1.1.1 GOVERNMENT OF INDIA'S CURRENT FUNDING PROBLEMS

The Right Of Children To Free And Compulsory Education Act (RTE) has been notified on the 1st Of April 2010. With this the 86th Constitutional Amendment making education for children between the ages of 6 and 14 a fundamental right will also be notified. The amendment was passed by Parliament in 2002. The inordinate delay in notifying the act has been due to lack of clarity on the quantum of funds required to operationalize the legislation as well as lack of clarity on the sharing of associated costs between the centre and the states.

It is of importance to note that the RTE is actionable legislation . This means that the Central Government can be taken to court for not ensuring free education to any child between the ages of 6 and 14.

It has now been declared that the total cost of implementing the RTE Act over a period of 5 years is **1,71,000** Crores. For the remaining two years of the **XI** th Plan period , this money is being made available by taking Rs 34,000 Crores that has been earmarked for the Sarva Shiksha Abhiyan. The states share for this period would be Rs 32,000 Crores. Keeping in mind that the centre's share for the XII th Five year plan would be 50 : 50 , the projected plan allocation for the first three years of the period can be expected to be Rs 50,000 Crores. The States would have to shell out the remaining Rs 50,000 crores. In this way over the next 5 years the centres share would be Rs 84,000 Crores and the States will be providing Rs 82,000 Crores. Summing up these two numbers gives a total of Rs 166,000 Crores . There is however some confusion on where the balance Rs 5,000 Crores will come from to make up the Rs 171,000 Crores that is being put forward as the total cost of implementing the RTE Act over the next 5 years.

The states have already indicated their inability to shoulder the higher burden of the RTE Act. Some of the states have already suggested that the centre should provide anywhere between **90 % – 100 %** of the cost of implementing the Act. The States are saying that they can come up with just Rs 16,000 Crores for the first two years (Rs 8,000 each year) and Rs 30,000 Crores for the balance three years (Rs 10,000 Crores each year of the first three years of the XIIth Plan). **This would mean a shortfall of Rs 36,000 crores.** In the light of this the 13th Finance Commission has suggested an increase of a few thousand crores in allocation for the SSA so as to bridge the deficit.

Even if all this money is arranged for and spent, it will still fail to prevent a huge demographic problem in India as most of the 100 Million + children will still exit the formal school system without any employable skills 6 – 8 years from now. The huge conceptual flaws in the Sarva Shiksha Abhiyan (SSA) as discussed earlier , will do nothing to help the emerging situation.

1.2 FINANCIAL STRUCTURE RATIONALE : MATCHING SOCIAL DEFICITS WITH FUNDING SOURCES

There are two main, apparently un-related issues that have governed the selection of sources for **30 %** of the fund requirements of this project. We will explain these concepts first , in detail,

before going into the balance 70 % of the financing. The combination of this 30 % with the rest of the structure makes this project different from other social infrastructure financings from around the world.

The first big problem, as stated before in this note, is that in excess of 100 Million children in villages , small towns and even in cities across India will exit the school going age bracket within the next 6 – 8 years without any employable skills and this will lead to extremely serious problems on the demographic front within India.

The second problem is that all major Indian cities and towns are turning into huge slums as migration from the villages and small towns to cities continues un-abated.

This massive migration into Indian cities can be mitigated in two ways :

1. By implementing Dr. APJ Abdul Kalam's PURA (Providing Urban Amenities in Rural Areas) Model … of which the Education Megaproject is a part. This will to some extent stop the huge migration to our cities.

2. By increasing the FSI in Indian cities and then re-zoning and re-planning them. Current limitations / ceilings on the Floor Space Index or FSI in Indian cities is therefore a big showstopper which will continue to seriously impede India's growth if drastic action is not taken.

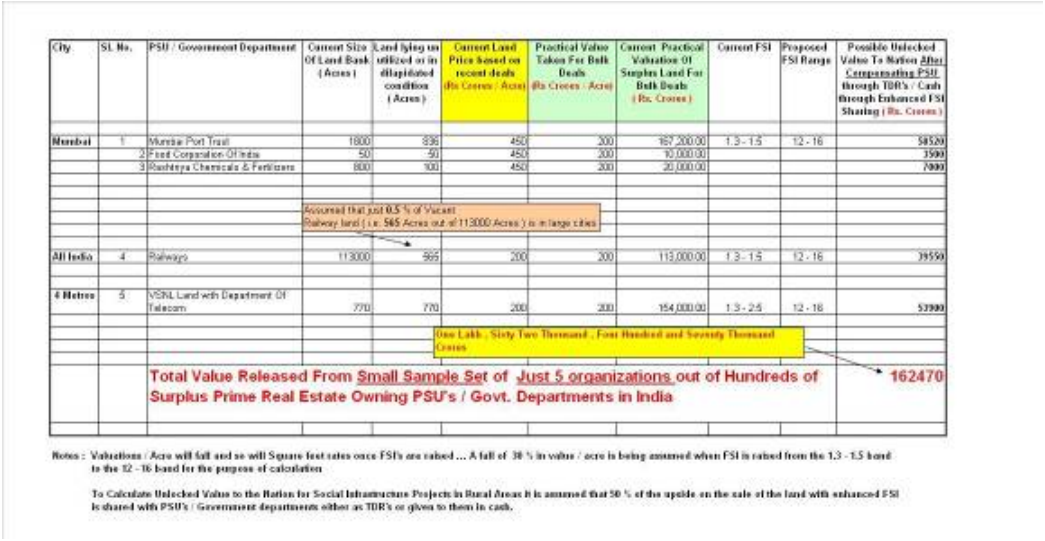
Not relaxing the constraints on either the skills / education issue or the FSI issue will lead to chaos and disharmony in India.

The first problem needs to be solved through a massive expansion of the education network so as to take the light of learning to every child in every village. In addition, hundreds of universities and thousands of polytechnics will need to be built . All this requires a lot of money but no money is available from any of the conventional sources within the government of India and subsequent to the passage of the much awaited " Right of Children to Free and Compulsory Education Act, 2009 ", the Indian government is clueless regarding where the huge sums required will come from.

India's cities and towns however , with their sky rocketing land values , are an unlimited source of cash which can easily fund not only their own development but that of every village and small town in India.

A Key question therefore is " Can we draw land equity out of our cities and deploy some of that money to bring the most modern education and sophisticated healthcare to every village and town across India ? ".

The idea therefore is that since we are going to be left with no option but to increase the FSI of our cities from 2 .5 – 3.5 levels currently to a maximum of 12 – 16 in certain areas , over the next 3 – 5 years, can we use this once in a lifetime opportunity to spread that wealth all over the country and take it to every village and town by providing every village with 2 – 3 good schools and a good hospital and health care centre ?



City	SL No.	PSU / Government Department	Current Size Of Land Bank (Acres)	Land lying un utilized or in dilapidated condition (Acres)	Current Land Price based on recent deals (Rs Crores / Acre)	Practical Value Taken For Bulk Deals (Rs Crores / Acre)	Current Practical Valuation Of Surplus Land For Bulk Deals (Rs. Crores)	Current FSI	Proposed FSI Range	Possible Unlocked Value To Nation After Compensating PSU through TDR's / Cash through Enhanced FSI Sharing (Rs. Crores)
Mumbai	1	Mumbai Port Trust	1800	836	450	200	167,200.00	1.3 - 1.5	12 - 16	58520
	2	Food Corporation Of India	50	50	450	200	10,000.00			3500
	3	Rashtriya Chemicals & Fertilizers	800	100	450	200	20,000.00			7000
				Assumed that just 0.5 % of Vacant Railway land (i.e. 565 Acres out of 113000 Acres) is in large cities						
All India	4	Railways	113000	565	200	200	113,000.00	1.3 - 1.5	12 - 16	39550
4 Metros	5	VSNL Land with Department Of Telecom	770	770	200	200	154,000.00	1.3 - 2.5	12 - 16	53900
				One Lakh , Sixty Two Thousand , Four Hundred and Seventy Thousand Crores						
		Total Value Released From Small Sample Set of Just 5 organizations out of Hundreds of Surplus Prime Real Estate Owning PSU's / Govt. Departments in India								162470

Notes : Valuations / Acre will fall and so will Square foot rates once FSI's are raised ... A fall of 30 % in value / acre is being assumed when FSI is raised from the 1.3 - 1.5 band to the 12 - 16 band for the purpose of calculation

To Calculate Unlocked Value to the Nation for Social Infrastructure Projects in Rural Areas it is assumed that 50 % of the upside on the sale of the land with enhanced FSI is shared with PSU's / Government departments either as TDR's or given to them in cash.

To my mind , the marriage of the simultaneous and huge cash shortage in the area of education / skills development with the huge surplus which will be realized on freeing FSI in Indian cities … is therefore only a matter of time and India will change all its show-stopping regulations to make this happen. There has already been some thinking on this subject within the World Bank group on Unlocking land values in urban India (World Bank PPIAF Policy paper No 7 , by George E Peterson ' 2009) and this paper could be used as a framework for decision making within the govt. of India.

From the above it is quite clear that the future growth of India over the next 15 – 20 years depends on the choice me make with regards of the Floor Space Index (FSI 's) in our cities and how we will use the massive liquidity (of the order of approximately **US $ 3 Trillion**) that will be generated as a result. It is to be noted that such a swap will not create inflationary pressures within the economy and therein lies it's strongest point.

1.3 EDUCATION MEGAPROJECT FINANCING

Given the fact that the central government as well as most state governments are running fiscal deficits in excess of **4 % – 5 %** , it does not appear realistic to expect any government (Central or State) to finance a large capex programme in education and other means must be found. This calls for financial innovation and the tapping into of hitherto untapped and new sources of funds and the creation of new financial and legal structures.

To arrive at an appropriate financing mix we have studied a number of options and numerous recommendations made by a number of experts both Indian and foreign. We were however not able to find large enough pools of finance in all the material we went through. The Nataraja Foundation therefore had to innovate and we started looking at all kinds of possibilities because without the money we did not have a project to talk about.

Finally we have been able to put together a list of possible financing options. For a proper understanding of the thinking behind this list we would like to direct our readers to **Annexure I** (Sources of Finance and related assumptions).

The list of sources of finance for the Education Megaproject is as follows :

1. Expanded GST … 10 % of delta additional receivables to be securitized
2. 30 % of a proposed new tax on the services component in future Infrastructure projects
3. A Graduate Tax payable by Employers In India
4. A Quantized Tobin Tax on Forex Transactions

5. Urban Equity Withdrawal from PSU Land at higher Floor Space Indexes (FSI's)
6. Yearly Rent From Re-developed PSU Land
7. Teacher / Content Outsourcing Business
8. Domestic Students on Fractional Vouchers / NRI Quota and SAARC / Foreign Students
9. Un-Utilized Funds with various Ministries and NGO's
10. Equity Infusion By Promoter groups for 25,500 Day Schools and 4500 Residential Schools
11. Committed and Un-Utilized Funds Lying with the World bank and the Asian Development Bank
12. Service Tax Feedback from a US $ 45 Billion / year new education business due to the Megaproject
13. 1 % of India's Foreign Exchange Reserves (Currently at US $ 278 Billion) … This is a backup source … not active within Rev 03.
14. Dis-investment proceeds from Public Sector and Bank privatizations … This is a backup source … not active within Rev 03.

The above sources have been combined within our new reference frame of the Indian economy circa 2025. To mobilize the above resources and direct them towards executing the Education Megaproject, there is a need for Parliament to enact two special legislations to give birth to a legal structure consisting of :

1. A Statutory Organization **"The Indian Social Infrastructure Corporation (ISIC) "** which will function as the nodal agency for setting up large primary education and healthcare projects.

2. A statutory fund **" The Indian Education Megaproject Fund** " which will be on the lines of the "Central Road Fund ", which has previously helped to successfully finance large highway projects in India such as the Golden Quadrangle project. The suggestion for the creation of this fund has come from Dr. Urjit Patel .

The creation of the above structure is essential for the execution of the Education Megaproject. Having described the institutional structure required for execution, we are now in a position to discuss the construction phase financing within the Megaproject.

1.3.1 CONSTRUCTION PHASE

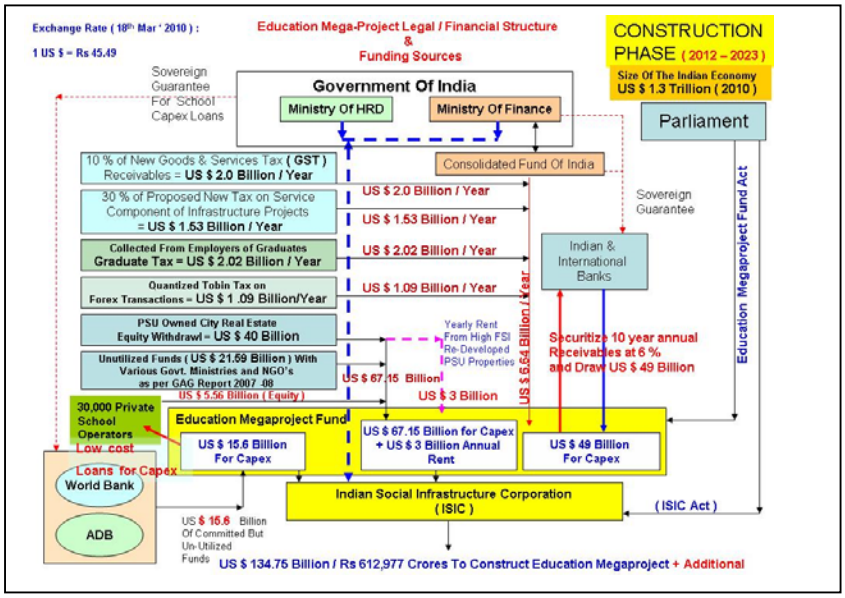
The financing strategy of this project draws on ideas and experience gained in India while successfully financing huge highway projects like the " Golden Quadrangle " and the " North – South, East – West Corridor ". The basic concepts and structures that are being suggested for this have therefore already been tested and they have worked in the past. The only difference is in the sources of finance, some of which are new.

As has been stated earlier, the Education Megaproject is essentially a large and highly organized Capex Plan that will raise fixed asset investments in primary and secondary education by a factor of **5** times over even currently expanded levels and maintain that investment level for **10** years without a break. This level is much higher than the " **6 %** of GDP on Education " promise that has been committed under the **XI** th plan but as we will presently demonstrate , this level of Capex is very much within our reach.

The Education Megaproject has a layered financial structure comprising of **8** different sources of finance which are brought in at different stages of the project in the course of it's 10 year construction phase. The choice of financial sources has been dictated by a project design specification which required that no new demands would be placed on the government's limited budget. This has been achieved in the project design and the scheme essentially comes at **very low cost** to Government of India and the financial structure for the project will be able to effortlessly raise the US $ 131.38 Billion or Rs 5,97,651 crores for the programme's capital

expenditure as well as the yearly US $ 42.57 Billion or Rs 193,632 Crores operating expenditure that will be needed once the entire system is commissioned in 2023.

Fig 1 : Source of Funds (Construction Phase)



Of the eight different sources of financing, five are totally new and three are more conventional. Four of the sources are yearly cash flows that will be securitized to raise nearly half the Capital Expenditure upfront while the other three are one time or phased bullet payments into the Education Megaproject Fund. Within the bullet payment pool two are large already committed yet un-utilized funds which will be drawn down immediately on project commencement. The financing sources are now described.

1. **Securitizing 10 % of New Services Tax Receivables under Goods and Services Tax (GST)** to raise a yearly cashflow of US $ 1.9 Billion. This amount will be pooled with three other components under (2), (3) and (4) below and then the pooled cashflows will be securitised at a 6 % discount rate to raise US $ 49 Billion from leading national and International Banks to finance Project Capex.

   A little background is necessary to explain the GST Securitization facility .

   Over the last few years , Services have contributed to approximately **70 %** of the growth of the Indian Economy and today services comprise **55 %** of the Indian economy with Manufacturing contributing 24 %and Agriculture Contributing 18.5 % to GDP .Under the hitherto prevailing indirect tax regime prevailing in India services could be taxed only by the central government and for this purposes the levy has been collected as an Excise Duty. State Governments under the Indian Constitution were not allowed to collect Sales Taxes on services because services were not included in the concurrent list of the constitution of India.

   The Goods and Services Tax (GST) is a huge improvement over the existing Value Added Tax System and it subsumes not just both goods and service taxes but a large number of other taxes as well within it , greatly simplifying the Tax Regime in India and significantly improving revenue collection and spreading the tax net.

   The New Goods and Services Tax (GST) Regime which goes into effect on the 1st of April 2011 is therefore expected to realize an additional delta GDP (net addition) of US $ 15 Billion each year for the Central and State Governments as per the latest

estimates of the National Council of Applied Economics Research (NCAER). The Net Present Value of these receivables over the next few years is of the order of **US $ 500 Billion** according to the Chairman of the 13th Finance Commission, Dr. Vijay Kelkar.

The Following is an excerpt from a speech delivered by Dr. Vijay Kelkar , at an ASSOCHAM Conference in New Delhi on the 29th of June 2009.

> "As I have mentioned elsewhere, it has been estimated that the GST implementation increased Canadian GDP by 1.4 percent. In India, we can expect a similar kind of positive impact. This means gains of about 15 billion dollars annually. Discounting these flows at a modest 3 percent per annum, the present value of the GST works out to about half a trillion dollars.
>
> This is indeed a staggering sum and suggests the need for energetic action to usher in the GST regime at an early date."

Additional GDP means additional taxes and this huge bonanza needs to be utilized in the most efficient manner to yield returns to the economy at the centre and in each state of India. We are however more bullish than the NCAER as India is different from Canada where a GDP gain of 1.4 % was seen. In our calculations we have therefore assumed a GDP gain of 1.6 % and therefore additional tax collection.

As the states will be using this money anyway , it will be far more efficient to pool 10 % of this money (i.e US $ 2.0 Billion Each year) in an Education Escrow Account within the Education Megaproject Fund … to immediately raise capital through a securitizing facility to part finance the project Capital investment to build the 30,000 schools planned under the programme.

While GST implementation will add US $ 500 Billion to the economy over the years, we will be securitizing just 10 % of the additional tax collected due to widening of the tax net.

2. **Securitizing 30 % of a proposed new 10.3 % tax on the services and labour component of Infrastructure projects.** This will be on the same lines of the 10.3 % tax on the service and labour component of housing and commercial projects that have been a part of the budget proposals in Mr. Pranab Mukherjee's Union Budget for 2010. India is going to see a projected investment of upto US $ 1.7 Trillion in Infrastructure projects over the next 10 years. While the promoters of these projects will continue to enjoy tax holidays during the operations phase , it is justified to collect some tax on the inputs so that the nation can train the human resources necessary not just to make these projects a reality but also to train people for a next generation economy. This new service tax on Infrastructure will generate an additional revenue of US $ 3 Billion each year for the Government and the Education Megaproject will be taking 30 % of this new tax , with the resulting cashflows being securitized and pooled for the purposes of raising money from national and international banks to finance Project Capex .

3. The Education Megaproject proposes to implement a suggestion made by others (NV Varghese in " Reforming Education Financing – 1991) to raise upto US $ 2 Billion each year through the **levy of a Graduate Tax.**

   Very briefly the idea is that India today has only 46 Million Graduates on whose education the Indian Government has spent a lot of money. Currently , the tax is

levied according to the taxpayers profession and a maximum of Rs 2400 / year is levied and paid to the local municipality or state government. In addition , all salaried employees pay an education cess of 2 % of their gross salary .

The fact is that these levies does not even come close to compensating the nation for the massive sums that have been spent on a persons education and in making a graduate out of him / her. Secondly , companies employing graduates are taking the full advantages of the increased productivity of these people without ploughing anything back into the system so that more people can be educated.

As an example , it costs the Indian taxpayer / Government of India over Rs 30 Lakhs to produce 1 IIT graduate and over a 50 Lakhs to produce one IIM Graduate. This does not include the huge opportunity cost of hundreds of people who cannot enter these institutions due to limited seats. The same argument applies to other professional courses.

Companies that employ these highly qualified people are getting assets for free and they generate huge profits … but the Indian government is getting a near zero return on it's huge investments in training these people. It is therefore proposed to levy a Graduate Tax @ 3 % linked to the graduate employees salary but payable by the employer. The Tax will apply to all graduate employees on a company's rolls. Every self employed graduate in the country will also have to pay this tax linked to his declared income . Only , non working housewifes and retired people will be exempt from the levy of the tax which can potentially net the Government an additional Rs 18,400 Crores each year based on an average income of Rs 130,000 per graduate whose employer is then taxed at 3 %. Assuming graduate employment in the organized sector @ 25 % we can expect a cash flow from the organized sector in the range of US $ 1.0 Billion each year with the much larger un-organized sector including practicing independent professionals contributing another US $ 1.0 Billion.

The New Graduate Tax will generate US $ 2 Billion from the organized sector and independent professional sectors put together. It is thereby proposed that there be a unified rate of Graduate Tax across India instead of the various slabs in different states. The unified Graduate Tax will also fully replace the Professional Tax that is being collected today. The Education Megaproject will take US $ 2 Billion of this cashflow which will be pooled and securitized to generate money for Capex Expenditure.

This Tax will be payable by the employers in all cases. Since India will be investing close to US $ 1.7 Trillion in Infrastructure in the next 10 years, it is going to create a huge skill shortage and we therefore do not feel that employees will face the burden of this tax in their salary negotiations with employers as it will be employers who will be competing fiercely for the best people. India is therefore going to see a considerable rise in average salary levels over the next few years and since qualified people will be in extremely short supply , we believe that employers will not be averse to paying this tax that is distributive and which promotes greater social equity. The Graduate Tax can be levied for a period of 15 years on every graduate employer to recover the cost of education borne by the Indian state on the employee. Some of the tax can be used to finance higher education (as suggested by Varghese et al, 1991) but most of it will go to the Education Megaproject as people spend most of their time in school .

An Exit Tax on students going abroad after benefiting from a highly subsidized education from IIT 's and IIM's can also be considered so that the Indian Taxpayer is at least able to recover his cost of providing education to those who leave the

country. Govt. Of India needs to have a policy to recover the complete cost of education from people going abroad permanently as this represents a huge loss to the Indian State.

4. **Levy of a 0.02 % Quantized Tobin Tax on Forex Transactions** by Indian owned Entitities & by foreign entities doing business in India to raise US $ **1.09** Billion / Year towards Project Capex .

   This tax had first been suggested by the Nobel Laureate economist Prof. James Tobin to discourage short term speculation through round trip excursions into another currency. The money collected through this tax could then be used to finance social development projects.

   Given that India is moving towards capital account convertibility and trading volumes will accelerate from current levels of between US $ 10 – 15 Billion per day to US $ 100 Billion by 2015 . It is therefore proposed to levy a tobin tax of **0.02 %** of the value of the transaction on all foreign exchange dealings by Indian entities or Indian controlled entities in any currency or any global entity doing a deal involving the Indian rupee. It would be possible to levy this tax because though the transactions get executed in markets around the world , the final clearing happens only in a few financial centres such as London and New York and a few others around the world. The idea here is not just to reduce volatility in the value of the rupee once it is made tradable on the capital account but to divert some of this money to fund social development projects in India. On December11, 2009, European Union leaders expressed broad support for the levy of this tax in a communiqu'e to the International Monetary Fund. This tax therefore has broad based support around the world and in India we need such a tax which ensures that a very small percentage of the huge wealth generated through currency transactions be utilized for development and education in remote Indian villages.

   The Governor of the Indian Reserve Bank Dr. D Subbarao, had in **Dec' 2009** hinted at the possible need for policy measures , including a **Tobin Tax** to control fund flows (US $ 17 Billion) into the Indian economy by FII's which had led to the appreciation of the Indian rupee by over 10% since end-March 2009, making Indian exporters un-competitive compared to their rivals in other countries. The RBI governor stressed the need to have some kind of control on foreign fund flows that had been responsible for worsening of the Inflation situation in India , the boosting of asset prices and destruction of Indian industry's competitiveness. The governor had said that " It is possible that the inflows will be much beyond our current account deficit. In the medium-term, it is our objective that India expand its absorptive capacity to absorb the capital flows, but in the short-term, should there be flows largely in excess of our current account deficit .... we may have to take some measures towards capital control."

   Of the approximately **US$ 1.7 Trillion** that are to be invested in India in the Infrastructure business over the next 10 years, if we assume that just **10 %** comes in from foreign investors it will create a huge upward pressure on the Indian Rupee and the government may be forced to come out with a special policy which requires foreign investors to bring in their equity only in terms of material supply (Cement, Steel, Machinery etc) to avoid an appreciation of the Indian Rupee. FII fund flows into the Indian Stock markets and in the currency markets will be several times this amount which will cause large inflationary pressures in India. The case for the imposition of a Tobin Tax is therefore definitely there. Taiwan, Brazil and Canada have experimented with this tax and India will most likely follow. The Education

Megaproject is therefore offering itself as a user project for the **$ 1.09 Billion** which will be collected each year at a minimum as **Tobin Tax**.

5. **School Operator Equity :** Private school operators under the terms of the BOT concession agreements will be bringing in 30 % of the 15 % of the cost of the school as their own equity. This amounts to just 4.5 % of the cost of the school. But taken for the US $ 131.38 Billion project as a whole , promoter equity contribution over a 10 year construction period will add up to US $ 5.66 Billion. Please note that this money will be brought in by 30,000 different operators over a 10 year period.

6. **Utilization of Unutilized World Bank & Asian Development Bank Funds :** The World Bank and the Asian Development Bank have together sanctioned a total of US $ 15.6 Billion or Rs 70, 964 crores to India but this money is lying unutilized with these two multilateral institutions as the government of India does not have any projects to utilize these low cost funds. During 2007 – 08 , The government paid a penalty of Rs 124.54 Crores as commitment charges on this massive un-drawn amount to the Multilateral agencies according to the Comptoller and Auditor General Of India (CAG) in it's March 31, 2008 report which was tabled in Parliament. This is a huge wastage of low interest rate funds.

   The World Bank / Asian Development Bank provide funds for specific projects (Healthcare, Water/Sanitation, Education, Rural Roads, Environmental projects etc) and it is usually difficult to reallocate this money for other than their committed sectors. However , since the Education Megaproject is an integrated development project with sub projects in all these areas , the multilaterals would not have any problems in disbursing all the committed funds for a single large education project that includes all these areas. The most sensible thing to do would be to immediately deploy this massive corpus for the financing of the Education Megaproject which at US $ 131.38 Billion will have a Infrastructure Investment Multiplier effect of nearly US $ 300 Billion on the Indian Economy over the next 10 years(construction period).

7. **Utilization of budgeted and dispersed , yet Un-Utilized funds with various ministries :**

   Almost Rs 108,000 Crores is lying un-utilized with various ministries and NGO's. The CAG in its report for 2007 – 08 has said that un-utilized grants of Rs 100 Crores and above alone totalled Rs 59,000 Crores between the years 2005 – 06 and 2007 – 08. In 2007 – 08 , under 97 grants to civil ministries there was an unspent provision of Rs 108,000 crores. This money should have been returned to the consolidated Fund of India, but this was not done. These are 2007 – 08 numbers but they are an indication of how much money is still lying un-utilized in key government departments handling social sector schemes in healthcare, education , rural development and food and public distribution.

   In 2007 – 08 , Rs 51,000 Crores was transferred under various Centrally Sponsored Schemes (CSS) . To make the system work more efficiently , this money bypassed the treasuries of the various state governments and was paid into the accounts of specially created state implementation societies and NGO's which cannot be audited by the CAG. In many cases, according to the GAG report, this money is lying un-utilized within these NGO's. A recovery mechanism needs to be set up to recover this un-utilized money and put it to work in creating assets within large social development schemes such as the Education Megaproject. The CAG needs to be specially authorized to conduct such and audit with the objective of recovering unused sums and re-deploying it to fund this project.

8. **"Urban Equity Withdrawal " in State Owned Enterprises :** A total of US $ 40 Billion is proposed to be raised towards project capex by applying the concept of differential FSI's to land owned by PSU's in the 4 Metros and large cities and towns across India. This form of financing gives effect to new thinking within the World Bank group on Unlocking land values in urban India (World Bank PPIAF Policy paper No 7 , by George E Peterson ' 2009).

   During the initial project execution phase , there could be a bridge financing requirement to finance the construction of the schools. Since the Indian Social Infrastructure Corporation (ISIC) by the sheer size of it's prime real estate holdings will be one of the worlds richest project companies / SPV's , this requirement of bridge finance will be met through equity and bond offerings which could be in the range of a US $ 5 Billion Equity offering and a US $ 15 Billion Global bond offering targeting a debt to equity ratio of 3 : 1 for the ISIC. The coupon rates of the 3 year bond offerings will be the lowest possible as the ISIC will have near sovereign rating.

1.4 EXPLAINING URBAN EQUITY WITHDRAWAL

While close to **US $ 3 Trillion** can be raised by freeing the FSI in Indian cities over the next few years , the scope of the present paper is being restricted to FSI gains that can be realized within various State Owned Enterprises or Public Sector Undertakings (PSU's) as this can de done fastest.

Indian Government (Central and State) PSU's own a very considerable amount of land all over India and in her cities and towns. In Mumbai for instance PSU's own hundreds of acres of land with FSI's ranging from 1.33 to 3.5 . The value of this land alone within the city of Mumbai , is in the range of tens of Billions of US dollars. Similarly PSU's own prime real estate in New Delhi , Kolkata, Chennai , Bangalore , Hyderabad , Pune and dozens of other prominent cities and towns. The total valuation of this land at an average FSI of 2.5 itself would be worth a lot of money and enough to finance 30,000 new schools and 3000 new state of the art hospitals put together.

If the FSI on this PSU owned land is raised to an average FSI of between 12 – 16 in the 4 metros alone it could release several tens of billions of dollars for massive social development projects all over India in a manner which will ensure an equitable distribution of wealth and development in the poorest parts of the country. This is a rare opportunity and the time has come to make this happen.

A generous portion of this monetized FSI will be shared with the PSU concerned and to safeguard the commercial interests of its government and private investors and the balance FSI of between 6 – 10 will be transferred to a new umbrella organization " The Indian Social Infrastructure Corporation (ISIC) " which will be set up under an act of Parliament on lines similar to the financial institutions such as UTI or more Specifically IDFC (Infrastructure Development Finance Corporation). A total of **30,000 acres** of land will be transferred to the ISIC from PSU's and government departments such as the Railways , Food Corporation Of India etc and another **900,000 acres** in small towns and rural areas will be separately transferred by state governments giving the ISIC a land bank of **930,000** acres under this scheme. Of the 30,000 acres of former PSU land in cities and large towns , 3000 acres will be prime real estate which will finance the education megaproject.

Of the 30,000 acres allocated to the Education Megaproject , 3,000 acres lying in Metros such as Mumbai , will be sold at an average cost of Rs 200 crores an acre (This is very a conservative number given that a 1 acre plot in a city like Mumbai was sold for Rs 400 +

Crores recently) to realize **Rs. 162,470 crores** after sharing some of the money with PSU's to finance a part of the project Capital Expenditure to build the 30,000 new schools.

1.4.1 ADDRESSING PSU CONCERNS

To fully accommodate the commercial concerns of PSU's and their government and private shareholders, they will get an enhanced FSI (either on the same plot or on their other properties that are not participating in the scheme) . For instance if a PSU is giving away prime real estate in Mumbai city which currently has an FSI of 2.66, they will get an FSI of 4.50 in another property in the same locality (if they own two properties close to each other and are giving away only one property) or an FSI of 6.0 in a less valuable location, in a manner that their commercial interest is protected. They could also be issued TDR's (Transfer of Development Rights) which they could trade on the market or they could receive cash for the enhanced FSI that accrues on the actual sale of their plots. So , If the plot has been granted an additional FSI of 8 , Cash equivalent of 5.5 FSI will go to the Social Infrastructure Megaprojects and a cash equivalent of 2.5 FSI will be paid in cash or issued as TDR's to the PSU after the sale of land through a transparent bidding process to Indian or International consortia , thereby avoiding any litigation from shareholders.

1.5 ISIC GOVERNANCE : PROJECT EXECUTION & OPERATIONS PHASE

The Indian Social Infrastructure Corporation (**ISIC**) has been conceived as an umbrella organization for social infrastructure within India and it will set up other social infrastructure projects as well based on unique financing structures of which differential FSI's are just one possible instrument.

The scale of cashflows that will be handled by the ISIC needs to be monitored in a transparent manner and the Megaproject need to be open to public audit. It is therefore an explicit requirement of this project, that it be executed in a corporate setup, outside the concerned ministry , under government of India. In fact , it is better not to execute the Mega Project, than to execute it within a ministry where in-efficiencies and leakage of funds will undermine the very basis of the project and lead to huge cost and time over-runs. It needs to be clarified here that the project however will spend tens of thousands of crores of rupees on assisting existing schools, that will continue to function under the aegis of existing government entities without getting involved with actually running them and getting embroiled in their internal politics and organizational structures.

The Education Megaproject SPV will be headed by a CEO whose appointment and standing will the same as that of a Chief Election Commissioner. The executive board of the SPV will have the Minister of HRD, The Chairman of the National Knowledge Commission, The Secretary , Ministry of HRD, the Deputy Chairman of the Planning Commission and the education secretaries of all the 28 states as members so that the interests of all the states are protected. The Prime Minister will be the honorary Chairman of the SPV's board.

Since the project has an innovative and completely independent financing mechanism it will therefore not hinder in any way any other previously running or currently planned scheme of the Government of India. This will instead be an add-on umbrella scheme that will greatly strengthen current government initiatives and will create an incentive for the whole system to achieve higher levels of efficiency than what is being hoped for at the present time.

1.6 REAL ESTATE ISSUES

The total quantum of land involved in the project (Phases I, II & III together) is **930,000 Acres** across different states and union territories all over India. Of this, **30,000 acres** will be land owned by Public Sector Undertakings in Metros and large cities and towns. The other **900,000 acres** will be land committed by various state governments in villages and small towns where the 30,000 new hub schools will be built. If in certain places in the country, government does not own land, the land for the school or hospital will be bought outright with cash and paid for by the **ISIC** which by virtue of being the biggest landowner in the country will have huge resources. In this way coverage all across India will be assured.

930,000 Acres might look like a huge amount of land but it is not. Actually , 930,000 Acres, can be visualized approximately as a strip of land **62 Km** by **60 Km**. It is not much land for India taken as a whole. All of this land will be transferred to the Indian Social Infrastructure Corporation after arranging for due compensation and allowing the erstwhile PSU owners to participate in some of the upside from the future use of the land.

The Education Megaproject SPV will then cherry pick **10 %** of this 30,000 acre land bank to Finance **30 %** of the Capex of the Primary & Secondary Education Project . The balance 90 % land will be given on rent / lease to commercial organizations in towns and cities so as to earn a yearly cash annuity to meet respective project Operating Cash Requirement and to subsidize Education to Low Income Groups.

All sales of land under the above arrangement will be in accordance with a transparent bidding process and **ISIC** land sold will have an FSI ranging from 8 - 16 for the creation of essential Urban and financial Infrastructure in major towns and cities . Thereby maximizing development of scarce land as also available funding for the project.

1.6.1 FSI ENHANCEMENT TO LEAD TO RE-ZONING AND MEGA URBAN DEVELOPMENT PROJECTS

The enhancing of FSI's in Indian Cities as described in this note is going to result in huge Urban development opportunities in India. I believe that the time for this is NOW. The raising of this money and the execution of the Education project however does not need to wait for the process of re-zoning of major cities to be taken up. In fact the land auctions of PSU land with enhanced FSI's can proceed immediately.

India is entering an era of Mega civil engineering projects. It is better to get used to this way of doing things on a large scale than to begin endless arguments as has been the traditional Indian way of doing things for the last 60 years. Enhancing FSI requires increased Infrastructure support in terms of city amenities and better municipal infrastructure. This will be incorporated into each city's new development plan ... There is a need for new thinking … and the time is NOW.

1.7 ISIC VALUATION & ADDITIONAL FUND RAISING

Going by the value of recent land deals in Mumbai where one acre has fetched upto Rs **400** Crores , the value of the 10 % of 30,000 acres (3000 Acres) transferred to the **ISIC** in cities and towns across India will be worth a lot of money even at a low FSI of 2.5. However on a very conservative basis if we assume that the average cost of land in a Metro is taken at Rs **200** Crores per acre, the value of the 3000 acres **cherry picked land** out of the 30,000 acres

transferred to the Indian Social Infrastructure Corporation will be approximately Rs. 600,000 crores.

This land bank will make the ISIC one of the highest net worth companies on the global Stock Exchanges. It will then be possible for the various SPV's within the ISIC to raise their own resources by selling land (Through a competitive and transparent bidding process) to developers or by issuing long term tax free bonds on par with RBI bonds.

Since the money available under this structure is virtually unlimited , the same structural vehicle / arrangement can be used to finance higher education in India where again a teacher centric model needs to be employed. This subject will be covered in a separate note, later in 2010, to the Planning Commission / NKC.

1.7.1 FINANCING : OPERATIONS PHASE

This project has been conceptualized keeping in mind the human resource needs of a **US $ 4.5 Trillion** economy in 2025. When we plan for that kind of scale we need to think in futuristic terms in terms of possibilities , with the understanding that we will negotiate the problems we encounter when we come to them. Let us not cloud our thinking with problems.

Secondly , we need to understand that of all capital expenditures on a sectoral basis, Capex incurred by a nation on education is least inflationary for the economy compared to all other possible avenues of investment. This is because education increases productivity and demand. All it requires is for us to have a little more faith in ourselves as Indians. Right now, the Nataraja foundation is a " Majority Of One " in believing that this project is do-able. Just imagine what will be possible if we are joined by a just a few other determined people.

The system of 30,000 new schools to be set up together with its network of 420,000 assisted existing schools (through a teacher sharing programme) will incur an operations expenditure of approximately **US $ 45 Billion each year.**

The question is " How do you raise so much money each year " ?

The schematic below shows how this money will be raised. The key thing to remember is that as the system grows , Indian GDP will also be increasing in a manner that will entirely support it and by the time the system is fully operational in 2025 , the size of the Indian economy will be **US $ 4.5 Trillion**.

First , we will look at whether we can use some of the annuities that were used in the construction phase. The following are the possibilities that will together provide **US $ 17.86 Billion** each year :

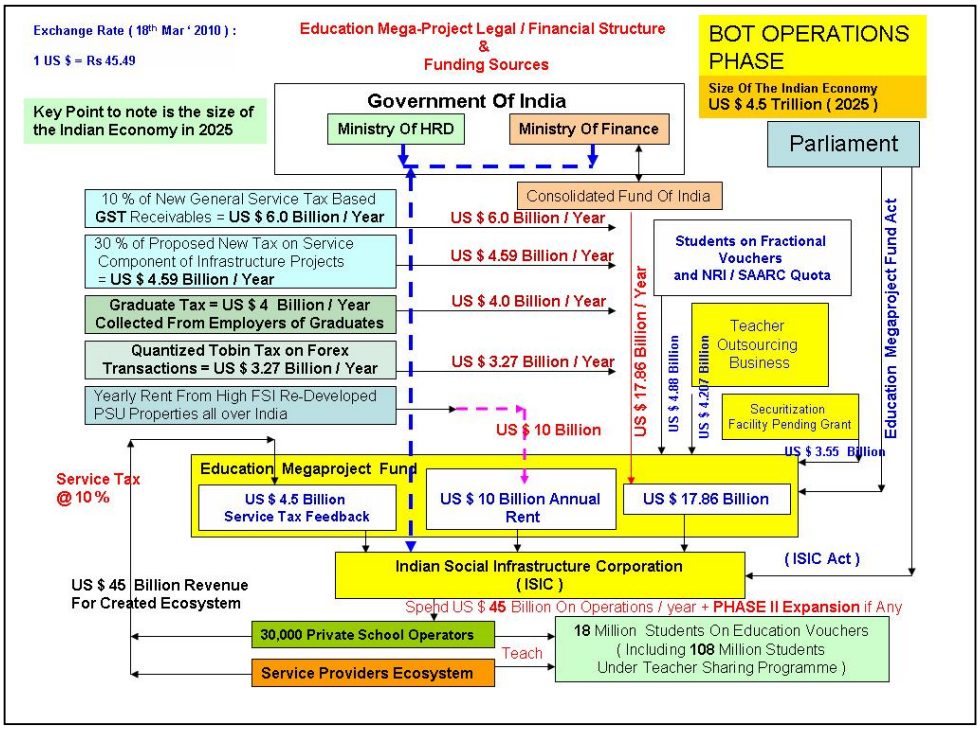
1. 10 % of GST receivables …
2. 30 % of Tax on service components of Infrastructure projects
3. Graduate Tax payable by employers
4. Quantized Tobin Tax
5. Yearly rent from re-developed PSU properties in partnership with leading Real estate developers

Secondly , three new revenue streams will come in to add another **US $ 13.01 Billion** to the cashflow . These revenue streams are :

6. Indian Students on fractional vouchers and NRI / SAARC children quota
7. Teacher outsourcing business
8. 10 % service tax feedback from newly created service provider ecosystem

Thirdly , a balancing number of **US $ 3.55 Billion** will be provided by the government of India which will now have a budget that is three times larger. It is not such a large number given that the size of the economy in 2025.

Fig 2 : Source of Funds (Operations Phase)



The first four of the above sources need not be explained in detail as they have been explained before . The only thing to remember while examining " Operations Phase Financing " is the size of the Indian economy in **2025** wherein the collections would have tripled. The number of graduates would also have increased as India as there will be a considerable increase in the number of Indian graduates given the current reforms being considered by the government in higher education and the number of foreign universities that will set up shop in India by 2023.

Items 5 – 8 above need to be explained and we will do so now :

Item 5 : Rent from former PSU properties … Readers may recollect that only 3000 acres out of the 30,000 Acres of land bank would have been sold during the construction phase to raise US $ 40 Billion to part finance the building of the schools.

It is envisaged that the Indian Social Infrastructure Corporation (ISIC) will serve as the cornerstone of an Indian urban equity withdrawal programme that will move wealth from large Indian cities to the rural countryside in a very coordinated manner.

Under the proposed plan, It is envisaged that the **ISIC** will enter into a 50 :50 partnership with leading real estate companies and project developers from India and around the world. The ISIC will provide the land and the developer will develop commercial and residential space in large Indian metros and large towns . A total of 10,000 acres of real estate will be developed at FSI's ranging from 8 – 16 to provide a yearly annuity of **US $ 10 Billion** to the ISIC for a period of 25 years. The exact terms of the contracts with large developers will be

decided by the ISIC after incorporation when it will have it's own staff as described later in this document.

Another 17,000 Acres of land will be set aside for a separate and massive Rural Healthcare project which will be built by the ISIC under a separate SPV. This project is currently under development and will be sent to the planning commission and the ministry of health and family welfare sometime early in 2011.

India currently needs another **200 New Green Towns** with a capacity to house one million people each. Given the experience gained in Urban Equity withdrawal within this project it is envisaged that the **ISIC** will be given additional government land to set up these towns in collaboration with the worlds leading developers. This will provide additional revenue and add to the valuation of the ISIC on stock exchanges around the world after it goes public in India. The staffing of the ISIC will be in accordance with this long term plan.

Item 6 : Students on fractional vouchers and NRI / SAARC children quota … The education megaproject is focused on economically weaker sections of our society and 70 % of the children enrolled in the schools will come from economically weaker sections.

This however does not mean that the upper middle class and the rich cannot get admission to the excellent schools that will be set up. As mentioned later in this note , even children from the richer sections of society will enjoy a subsidized education but they will have to pay **1/ 3rd** of the fees. Since the vouchers will be worth Rs 101,400 for day schools and Rs 129,500 for residential schools , the more economically well off will be required to pay 1/3rd of this amount. In addition SAARC students will be admitted to at the full fee and NRI's foreign students will need to pay double the value of a voucher and still it will be cheaper than studying in a private school in the United States for example for NRI students. The NRI / SAARC quote however will be just **3 % .** A majority of the **US $ 4.88 Billion** will come from Indian students on fractional vouchers and we do not see any problem with demand at the yearly fees (1/3rd of voucher amount) mentioned above for day schools and residential schools.

Item 7 : Teacher Outsourcing Business … Currently teachers in India function in a highly restrictive environment. They have a considerable amount of free time but they are not able to utilize this free time properly and grow in their careers. Instead they are forced by the government to take on duties like election monitoring and taking of the census.

The Education Megaproject looks at teachers as highly productive and creative people and seeks to allow for the development of primary and secondary school teachers to the full extent that is humanly possible. We do not wish teachers to feel that they are stuck in dead end jobs. With this in mind the project also has a huge graduate programme for existing teachers in government jobs , to enable them to upgrade their skills so that they fit into the expanding new infrastructure.

All the **1.74 Million teachers** within the Education Megaproject will be on a 5 year contract. This contract however will be highly flexible and will allow for the establishment of teacher working groups where teachers will be able to be entrepreneur professionals. We have identified 2 possible areas where teachers can be very active :

1. Creation of creative teaching content for the global markets by entering into business arrangements with schools in foreign countries and within India. The education megaproject will provide all the infrastructure and communication needs to facilitate this. The only condition being that teacher groups will need to share their earnings with the ISIC in the ration 60 : 40 with 60 % of the revenue going to teachers.

2. There will also be a provision under which teachers will be allowed to go on teacher exchange programmes to foreign countries where huge shortages in trained teachers exist. In a school with 300 students and 58 teachers , it is envisaged that up to **5** teachers at any given point in time will be on a foreign assignment.

These two programmes will greatly help to attract the best people to careers in teaching and at the same time allow for considerable growth of teachers as professionals. Teachers will also earn a lot more than they are earning today. In the above it is being assumed that each teacher has the potential to earn an additional Rs 5,50,000 in the aggregate each year. It is estimated that the teacher outsourcing business will add close to **US $ 4.207 billion** each year as a funding source for the project considering a **40 %** share of revenues to the ISIC.

Item 8 : A 10 % service tax feedback … The huge primary and secondary school network that is proposed to be set up will be creating an ecosystem where **US $ 45 Billion** will be transacted each year at a minimum.

Thousands of information and learning content providers and service companies will be created to serve millions of children in India and around the world. All this means more tax to the government of India. If service tax is levied at the rate of 10 % , it will imply a feedback of **US $ 4.5 Billion** to government coffers. We have taken this money in as a feedback to re-finance the project's operations.

After accounting for all the above inflows , we still are falling short of **US $ 3.55 Billion**. This we have currently designated as a grant which govt of India will need to provide. We do not see a problem with this as the Indian economy would have grown considerably by **2025** and government of India will be in a position to easily provide the funds without any financial impact on it's other schemes.

There is a need to make a small point about operations expenditures here. In the operations phase the schools will operate very differently on the expenditure side from the current system under which the Sarva Shiksha Abhiyan (SSA) operates. Under the megaproject, schools will be completely free to outsource procurement of goods and services and a lot of the expenditure they will incur will be paid to private vendors. While school operators will have considerable autonomy in spending money , they will be required under the terms of the concession documents to publish a yearly report on budgets plans and actual expenditure incurred on the Context based communication system's open database platform. This will have two very important effects :

1. It will help compare the financial performance of the 30,000 schools on various parameters … thereby serving as a natural check on funds leakage

2. Since the amount received from the ISIC under the educational voucher system is fixed and **not cost plus** , it will encourage innovation in procurement of goods and services and introduce competition between vendors supplying to the schools … all of which will greatly reduce costs and check corruption.

1.8 PROJECT RAMP UP FINANCING

The project will have a 13 year ramp up phase from 2011 to 2023 during which the system will be rolled out starting from the pilot projects. The total operations financing requirement of this period is **US $ 167.25 Billion.** For the purpose of developing a robust financing strategy for this period , the ramp up phase has been divided into two periods. In the first period 2011 – 2017, the total operations cash requirement is **US $ 31.78 Billion**. To meet this cash requirement , It is proposed to sell an additional 2000 acres of land, that is a part of the ISIC's land bank in various metros and to buttress this with a small percentage of cash from

the sale of strategic stakes in various PSU's and government owned banks. In addition the surplus money that has been raised during the construction phase and considerable surpluses generated from our operations phase financial structure will be more than enough to meet the needs of the first period.

In the second period of the ramp up phase (2018 – 2022) , the operations financing needs increase considerably. This period will have a cash requirement of **US $ 135.47 Billion** in the aggregate. We believe that there will be no problem with raising this money as given an **8** % sustained growth rate , the incremental cash flows from the annuities will allow a phase of securitization wherein another US $ 25 Billion can be raised from national and international banks. There will also be enough free cash flow generated the sale of additional land in the land bank (another 3000 acres of PSU land from the balance 15000 acres) and a considerable sum will also come in from the sale of concessions to set up **200** mini city development projects / Green cities that are set up to reduce migration to large metros. We are therefore not seeing any problems in raising capital if the proper policy decisions are taken. The only limiting issue is our imagination and our commitment to see this project achieve it's targeted completion date of Dec 2023.

It is important that project milestones be met as specified so as to avoid cost overruns during the execution phase. Proper planning is therefore of vital importance as is the use of a context based communications system / IT platform that will keep a firm lid on costs. It is vital that a robust communications platform be used for project control.

EDUCATION MEGAPROJECT CONTROL MECHANISM

The section describes the Megaprojects control mechanism " The Education Voucher System " which makes it possible to operate the Megaproject with minimal government intervention.

The Education Voucher Protocols ride on a complex communications platform to deliver 100 % financial and operations control reliability in real time.

The system is foolproof and any funds leakage will be immediately reported all along the projects hierarchy.

2.0 PROJECT CONTROL … THE EDUCATION VOUCHER SYSTEM

2.1 THE EDUCATIONAL VOUCHER SYSTEM

The education Megaproject has a large and innovative Educational Voucher programme based on global best practices.

A total of **18 Million Educational Vouchers** will be distributed to the economically weaker sections of society .This WILL NOT be a caste based distribution but will be targeted at the poorest citizens of India and **80 %** of the vouchers will be distributed in rural areas where **80 %** of the 30,000 schools will be built.

Students from all over India between Standards IV and X will be eligible to take a yearly simple aptitude test (This will not be an exam to test proficiency or Knowledge) as the idea is to test basic aptitude and to **Include the Excluded** among our children. The score on this aptitude test will be combined / multiplied with an **inverse metric** of the educational history of the child to yield a total score.

For example if a child scores high on aptitude but has already had a good education in a good school he will get a lower score than a rural child who has scored equally on aptitude but has not attended a proper school before. This inclusion of an **inverse metric** will ensure that only the most needy children will win the Educational Vouchers … thereby promoting social and economic justice to all irrespective of cast , creed and religion. All existing schools in India will be given a rating based on their fees charged and the demographic profile of their existing students. This rating will then go to form the inverse metric described above.

The Educational Vouchers will be structurally designed to be a promissory note from the Indian Social Infrastructure Corporation (**ISIC**) to the Schools. No child or his / her parents will receive any money under the system. After the child passes the aptitude test and wins a voucher, the child's parents will have a right to decide where their son / daughter will study. The Voucher will therefore be transferable between schools but not between students.

It is critical for the success of the Indian Education Megaproject that the Voucher programme provides for a fair economic return to the parties who bid for setting up the schools. Each Voucher will carry both an actual cost of education and a face value that will be payable to the school that admits the child. Under the education megaproject and its current cost structure , Day schools will have an actual cost of education of Rs 97,400 and a face value of Rs 101,400 (the face value will be payable to the school as fees). The numbers for the residential schools will be Rs 119,500 and Rs 129,500 (face value). In addition to this service provision charge as just described (Rs. 4000 / - for day schools and Rs 10,000 / - for residential schools) there will also be a guaranteed return of 20 % on equity for promoters which is included in the basic cost as mentioned above.

In the beginning however , to fill the schools , children in all classes from Class IV to Class XI will be allowed to take an entrance test suited to their particular level. Once the schools are filled , the entrance test will be held only at the class IV level. This is being done because most of the learning happens after class III and between classes IV and XII. The Competitive exam will be open to all children in India at the class III level irrespective of caste , creed , religion , sex or economic status. This will ensure equity and social justice while at the same time making the most efficient use of scarce financial resources. Once a child clears the entrance test he / she will have access to education that today is available only to the well off. In this manner by making it possible for every child in the country to

compete in a national exam, fairness and transparency will be assured within the system. This conducting of a simultaneous entrance test for 18 million Children is not such a big issue as we have been conducting elections on a much bigger scale in India. Holding the entrance test is therefore not a problem.

The vouchers also provide a foolproof and market determined method to ensure proper behaviour of the school managements. It is therefore an explicit requirement of the contractual structure that if more than **5 %** of the children in a school decide to change the school by moving their voucher to another school, the Information architecture of the Megaproject will trigger a procedure that will result in the schools management receiving a show cause notice . If 10 % of the children switch their voucher, the system will trigger a contract termination procedure from the ISIC.

The education voucher programme has a huge long term social objective as well. By targeting economic benefits to the poorest sections of our society, based on aptitude , it seeks to, over a period of 15 – 20 years, an end to caste based admissions to institutes of higher education and within 25 years to end all job reservations in India.

The cost of the education vouchers must be seen in the context of the larger economy that they seek to create by 2025. We need to graduate to a new level of thinking in India which seeks to provide human resources to run a US $ **4.5 Trillion** economy by 2025.

EDUCATION MEGAPROJECT PPP FORMAT

The section describes the PPP Format and the rules under which 500 Teachers Training Institutes, 120 Masons Training Institutes and 30,000 New Schools will be given out on bidding under the Project Documents

3.0 EDUCATION MEGAPROJECT PPP FORMAT

This section lays down the basic concepts of the new Public Private Partnership format that is being proposed for schools in India . It's purpose is to establish principals of equity and make the following very desirable outcomes possible :

- Lower the entry barriers to a level where people with an actual interest in education but will little resources can participate in a bidding round and have a fair chance of winning.

- Discourage lumpen elements and other un-desirable interests out of the core area of education.

- Put in place a strict set of rules whereby the system can run with minimum regulation. A one page rulebook on the lines of the American constitution which is just 15 pages (The original was just 4 pages) is therefore prescribed.

- Encourage the development of Vernacular Architecture and traditional construction technologies in the country with the objective of vastly improving the elegance of building construction at the village and small town level and at the same time spreading knowledge in low cost , environmental friendly construction technologies and providing employment to **10 – 20** million rural youth.

3.1 BOT CONCESSION CONCEPTS :

Public – Private partnerships in education are crucial to the objective of de-centralization and accountability within the Indian School System. The 30,000 new schools that are proposed here will therefore all be under the BOT regime.

Since education is a subject under the concurrent list of the constitution, The central government will consult the state governments before finalizing the model BOT concession agreement. A project consultant will be hired to prepare the model concession agreement by consulting all concerned parties. To ensure uniformity, there will be just **1** model concession agreement for all the 30,000 schools across all 28 states and 7 Union Territories. **The Indian Social Infrastructure Corporation (ISIC)** created under an act of Parliament (mentioned earlier) will be the nodal agency and concessionaire for award of the concessions. The state governments will be committing the required land to the ISIC in their respective states.

Parliament will also enact another legislation **" The Indian Education Megaproject Fund Act "** which will set up a statutory fund **" The Education Megaproject Fund "** to receive special cash flow streams coming from **8** different sources and commit these cash flows to provide **85 %** of the cost of building the schools and **100 %** of the cost of operating the schools (through a system of **18** million education vouchers) together with a large teacher sharing programme. Included in the government provided education vouchers above will be a decent rate of return to the school operators.

All schools built under the plan will have an initial concession period of **15** years after which the performance of their managements will be evaluated and the BOT concession will either naturally terminate **or** will be allowed to continue under a BOO framework. Individuals and institutions wishing to set up schools will be required to bid for the project for which there will

be certain biddable criteria. The winning party will receive land free of all encumbrances as well as all clearances & permits from state and federal government authorities including educational boards along with the project specifications immediately after the winning bids are notified. This procedure will do away with the current in-efficient and time consuming process of multiple clearances and associated lack of transparency.

The BOT scheme in the operations phase will be governed in accordance with a **1** page rulebook (described below) which seeks to ensure that genuine parties with an interest in education get an opportunity to run schools while at the same time , crucially to prevent , un-scrupulous elements from using the scheme as a means of grabbing land. The BOT rules in this regard will be quite strict and very clear on land use and violation of any of the rules will result in termination of the concession.

Each winning bidder for a school project will be required to strictly implement a **teacher sharing programme** which will cover **14** additional schools located within a 50 Km radius. This is a crucial requirement of the Education Megaproject. The Schools have been specifically been overstaffed by design and funds have specially been provided to make this possible .

The Voucher system is central to the concept of the BOT framework that is being proposed. A total of **18 million vouchers** will be issued under the Education Megaproject. These vouchers will have 2 face values depending on the school type :

1. Day Schools : Rs 101,400

2. Residential Schools : Rs 129,500

The vouchers will mandate that certain norms be followed in the provision of services to the students and their parents . The quality of services will be clearly specified. The voucher value will also include a service charge per child which will be given to the schools. This will be in addition to the guaranteed return on equity of 20 % which is due to the school operator each year during the concession period. **In no case will money be paid to the students or to their families.**

The following are some of the other key features of the PPP format that is proposed :

1. The BOT concession for the Primary & Secondary Schools will be given with all necessary clearances and professional affiliations in a single window. If a promoter group / concession awardee fails to meet certain transparent criteria (specified in a 1 page rule book), the concession will be terminated and offered to a new developer ... there will be no appeal to any court and the 1 page rulebook will be very clear on concession termination issues.

2. Under the plan, school projects will be offered out on bids to the general public. To ensure that a proper value system is maintained and to keep out unscrupulous promoters, each bidder for a school project will need to have any two of the following categories of people on the governing board :

   - A Vice Chancellor
   - 2 Senior retired teachers / Educationists with over 20 years of teaching experience
   - 2 Retired senior defence officers / Judges etc
   - 2 Well known public personalities from any profession

3. In all cases (2 above) the individuals concerned must have a clean track record with no history of wrongdoing. This will ensure the necessary level of integrity to the schools and this needs to be made a mandatory requirement of the project under the BOT concession document. In addition certain social criteria / social goals will also be biddable items under the project criteria and organizations such as the **TATA Institute of Social Sciences** could be roped in to develop transparent social criteria as biddable items and therefore deliverables from the school concessionaire.

4. As stated earlier, each of the 30,000 schools constructed under the programme will be required under the terms of the BOT concession document to share their teaching resources with 14 other schools in their area. The concept here is borrowed from the experience of our former president Dr. APJ Abdul Kalam. He did not have the best living facilities but he did have access to a great teacher who inspired him.

   If the management board of a school fails to share its teaching resources with 14 other schools (after winning the concession) , the concession will be withdrawn and the school will immediately be transferred to another bidder or to the State Government / Central Government. This is because the schools formats have been overstaffed by design to enable the teacher sharing scheme which is being specifically funded by the ISIC / SPV.

3.2 PRINCIPAL QUALIFYING / BIDDING RELATED ISSUES :

1. Indian Ownership Of Schools : To safeguard the national interest , while foreign entities are welcome to participate in these schools, the control of the schools will vest with Indian nationals.

   Under special circumstances however , Non Resident Indians (NRI's) with a proven interest in education will be allowed to bid for up to a Maximum of 5 schools in each of the three , school building phases. Similar restrictions will apply for the bootstrapping phases for the creation of project enabling infrastructure ,which includes teachers training institutes and masons training institutes. NRI's however will need to bring in **Rs 10 Crores** for each school and their concessions could be on a BOO basis from the beginning.

2. To protect India's secular framework and to ensure that all the citizens of India develop a good understanding and acceptance of other religions and faiths, Religious organizations wanting to set up schools under the scheme will be required under the project documents to provide a reasonable exposure to the scriptures of all religions to their students. The ideas in The Guru Granth Sahib, The Bible , The Koran, The Geeta , The Avesta, and the other religious texts will all be required to be discussed equally in the schools and electives will be offered in these subjects which could be taught by priests from all these religions.

   We need more religious understanding and more acceptance among our children if we are to prevent riots and other such incidents in a world that is turning increasingly violent. We are having riots in India today because people have not understood the essential message that all paths lead to the same goal. Huge damage is being done to our communal fabric in India by not teaching the essential oneness of all religions. If this is allowed on a large scale, the whole of India will become a living hell and possibly the most dangerous place on earth. We must therefore expose our children to good ideas from all religions and it is

for this purpose alone that Vivekanand's extremely broad views on religious inclusion in education has become the project design basis document.

3. Schools are social Infrastructure Projects. In this case the Indian Social Infrastructure Corporation (ISIC) will also be providing huge subsidies for both building of the schools as well as for running them. It will therefore be improper to judge bids on financial criteria alone. With this in mind, It is proposed that the National Knowledge Commission engages with Social Organizations such as the TATA institute of Social Sciences to devise a set of Social Criteria / Required Social Dividend (RSD) for the evaluation of bids received from Interested parties in the bidding rounds.

4. Each of the schools will be given land free of cost by the ISIC for an initial period of **15** years. Therefore to prevent the project from de-generating into a Land Grab opportunity for un-scrupulous promoters the following rules will be introduced :

    - There will be no other construction allowed on school land except for school buildings.

    - Winning bidders will not be able to divert school land for any other purposes other than those permitted under the concession documents.

5. In addition , No corporate house and no other party with the same promoter set (even **1** common promoter) will be permitted to bid for and later operate more than 50 schools under all the three phases of the project put together.

6. No special interest group representing teachers will be allowed to bid for projects under any of the bidding rounds. In addition all the 1.74 million teachers will be on 5 year renewable contracts with the schools on generous terms. This is being done to ensure teacher accountability which is currently very low in India where teachers on permanent jobs bunk school for 25 % of the working year. It is a fact that on average village teachers in most states attend a maximum of 188 days in a year. This measure is therefore being introduced to protect student and parent interests.

The objectives of the Public Private Partnership project are two fold. The first is to encourage greater community and teacher participation in the project and the second is to encourage more diversity and to help people with a genuine interest in education but without enough resources to enter the field of education. This is a most important objective.

With this in mind , over **85 %** of the project cost will be contributed by the Government owned ISIC . Some of this money will be provided to start up the project and then progressively as certain specified project commissioning milestones are achieved more cash advances will be given to complete the construction.

To prevent this money from being diverted elsewhere within the businesses of the promoters (if they are business people / entities) , the **ISIC** will be re-imbursing their Project Capex related costs only on completion of specified project milestones. In this respect, Corporate concession documents will be different from Individual / Community operated concessions. This is being done to ensure that money is available first to those promoters who need it the most to get their projects off the ground.

Also it needs to be understood very clearly that community participation in schools under the education megaproject does not mean that the schools will be run by the gram panchayats or the local village council of elders. The schools will in all cases be run by the concessionaire for 15 years under a proper legal mandate from the government of India. It is expected that the concessionaire as part of the community , will be having a cordial relationship with the local panchayats and all communities including the lowest castes. To do their job well however it is necessary to keep village politics out of education otherwise the lowest castes , the harijans will never get a chance to attend school and get an education. It will be a good idea in this regard to locate schools and provide land for them in the middle of the low caste areas which the higher castes can then send their children to. This will be equitable and the purpose of social justice will be served.

3.3 INDIVIDUAL SCHOOLS BIDDING CRITERIA & THE 1 PAGE RULEBOOK

There is a need to protect this project from being high jacked by vested commercial interests who will seek to profit from the large sums of money involved. Any structure that is conceived therefore must protect project cash flows from un-scrupulous operators and land grabbers who will seek to grab as much of the **9,00,000** Acres of land that will be put out on bids for the purpose of setting up 30,000 new schools all over India.

Secondly …

India is a secular state and by secular we mean freedom for all people to practice and propagate the religion of their choice, free from any kind of pressure or threat from any other religious or political group. Secularism is at the core of our constitution and the upholding of this spirit is critical to the future of India. There is therefore a need for very sound policies and a broad minded and advanced philosophy that seeks to build an inclusive society.

It is for this reason that the Inclusive and highly advanced philosophy for Education propounded by Swami Vivekananda has been adopted as the projects design basis. This philosophy, recognizes and welcomes the fact that India is a pluralistic society and it seeks to ensure that every human being whether Christian , Hindu , Muslim , Parsee or Sikh is able to realize and propagate his or her own ideal within their own religion or faith .

With the above two objectives of maintaining financial propriety and guarding the secular fabric in India , a number of protections are enforced under the project design through a One Page Rule Book and by the Bidding Criteria (described earlier).

The Institutional structure and the bidding criteria have already been covered. Described below therefore are the rules that are to be observed by school concessionaires on winning a concession to run a school.

3.3.1 THE ONE PAGE RULE BOOK :

Governance in the Construction and Operations phase of this project at the individual school level will be in accordance with a one page rule book which seeks to reduce to a minimum, any operational problems and associated litigation involved with the administration of the thousands of concession agreements that will be signed under this project. This one page rule book is extremely important from a governance standpoint and it is therefore a mandatory requirement under the concession

documents. The rules will be un-ambiguous and very clear. Departure from any of the key terms of the agreement after the completion of a 3 year settling / stabilization in operations / trial period will result in termination of the concession.

Some of the key items in the one page rulebook which will also be included in every concession document are as follows :

1. Each of the 30,000 schools, is being set up with the objective of sharing teaching resources with 14 other schools within a 50 Km radius. Adequate sums of money will be specially made available each year to enable sharing of teaching resources. School managements found in violation of this condition will face termination of their concession.

   Further, in the case of managements running several schools under several concession agreements, default at one location will lead to termination across geographies. This is fair because money is being specially provided for funding the teacher sharing programme and the schools are being overstaffed by design to enable teacher sharing. School managements will however be permitted to optimize resources such as transport by opting for hiring transport instead of taking the substantial transport facility (2 large buses, 2 mini buses, 4 jeeps and 4 small cars) together with fuel supply that is being provided by the ISIC under the concession documents.

2. Misappropriation of funds , if proved, will be grounds for termination of the concession to run the schools.

3. If a Religious institution running a school is found to be spreading a message of intolerance for other religions ... it will be a ground for termination of the concession. In case the religious organization is running multiple schools, the ISIC will be empowered to terminate all concessions in respect of the offending operator.

4. Diversion of project land for a purpose other than education , strictly as defined under the project documents will lead to termination of the concession.

5. If a Schools management excels in the operation of a school / schools under it's operational control , it will be preferentially offered more schools to manage and will be a preferred bidder for future bidding rounds under the project documents. In such cases operators will be allowed to exceed the 50 school limit under the bidding rounds. Good performance will be rewarded by relaxing the criteria if necessary.

ANNEXURES

1. **SOURCES OF FINANCE AND RELATED ASSUMPTIONS**
2. **PROJECT CAPEX AND OPEX OVERVIEW**
3. **MEGAPROJECT INFORMATION ARCHITECURE**
4. **SURPLUS LAND WITH PSU's … A SAMPLE SURVEY**

Note : Annexure 3 is supporting literature which contains excellent ideas . These ideas come from others and the sources have been clearly mentioned.

TERM SHEET

Assumptions On Financing / Sources Of Funds :

US $ / Rs Exchange Rate (18th march 2010) 45.49

Sl. No.	Source Description	Estimate of Total Possible Corpus (US $ Billion)	Notional Amount Potentially Available / Year (US $ Billion)	% Of Source Proposed For Education Megaproject	Amount Available Each Year (US $ Million)	Cash Available Each Year (Thousands of Crores)	Remarks / Critical Assumptions
YEARLY FUND FLOWS / Annuities							
1	**Net Present Value Of Inceremental GDP Increase after GST implementation** starting 1st April '2010 (Delta Over Current) . The Total Corpus in the next column is assumed and calculated over a 25 year period with a discount rate at 3 %. This cash flow will triple by **2025** when the size of the Indian economy is expected to be **US $ 4.5 Trillion.**	500	20	10%	2000	9098	If net / delta addition to GDP is **US $ 20 Billion** each year solely due to GST implementation, then government can afford to earmark **10** % of that Delta to an Education Mega Project from the Consolidated Fund Of India through a special legislation that creates " The Education Megaproject Fund ". It is being assumed here that the NCAER has taken a 25 year period for calculating the Net Present value at a 3 % discount rate. If they have taken a 15 year period instead , then the yearly sums that will be available will be much larger.
2	**30 % of a proposed new tax on the services component in future Infrastructure projects.** The base case estimate of the delta / net additional Infrastructure investment in India over the **next 10 years** is taken at **US $ 1.7 Trillion** (Goldman sachs View). This cash stream will triple by 2025 when the size of the Indian economy is expected to be US $ 4.5 Trillion.	510	5.1	30%	1530	6959.97	A new tax proposal on the lines of the recently implemented tax on the services component of housing projects (2010 Budget) will need to be implemented to extend service tax to the labour and services component of Infrastructure projects. This will very easily generate a new cash source for creating the human resources necessary to plan and build large Infrastructure in India. Right now there is a shortage of 30 million trained people in the construction Industry alone (Mckinsey 2008). So the imposition of a service tax on the labour / skill component of Infrastructure projects is fully justified . It is being assumed here that 30 % of an Infrastructure Projects cost is services and Labour. It is also being assumed that servoce tax on the Labour and services component will be @ 10 %.
3	**Graduate Tax Collected From Employers In India.** It is assumed here that there are **46 Million** Graduates in India (2004 Estimate). This number today is larger. This cash stream will double by 2025 when the size of the Indian economy is expected to be US $ 4.5 Trillion.	10.11	2.53	80%	2022.42	9200	Employers are being taxed because they are getting access to qualified graduates free of cost and have not paid a single paise for their education. This tax will be levied at the rate of 3 % on the Cost to Company (CTC) of the employee and will be paid not by the employee but the employer. Please note that the current education cess and professional taxes are separate taxes and are being borne by the employee. Companies must also pay a tax because they are getting trained manpower free of cost. We believe that companies will not be able to pass this tax on to employees as companies will also be competing with each others in a rapidly growing economy where skills shortages are acute. Also it has been realistically assumed that only **25** % of this tax is collectable from graduates as many work in the un-organized sector. Many housewifes are graduates too . If independent professionals such as doctors can be taxed, the collection will go up dramatically. Also it is assumed that **80** % of this tax will go for primary education as a person spends 80 % of his time in school.

Assumptions On Financing / Sources Of Funds :

US $ / Rs Exchange Rate (18th march 2010) **45.49**

Sl. No.	Source Description	Estimate of Total Possible Corpus (US $ Billion)	Notional Amount Potentially Available / Year (US $ Billion)	% Of Source Proposed For Education Megaproject	Amount Available Each Year (US $ Million)	Amount Available Each Year (Thousands of Crores)	Remarks / Critical Assumptions
4	**Quantized Tobin Tax on Forex Transactions.** It has been assumed that the volume of daily average forex transactions in India and by companies doing business in India is of the order of **US $ 15 Billion**. A Tobin Tax (First proposed by Nobel laureate James Tobin) to be levied at the rate of **0.02** % on the total volume of the transaction which will be quantized as per the size of the transaction with higher rates applying to larger transactions to prevent speculation on the Indian Rupee as it moves towards Capital Account Convertability). This cash stream will triple by 2025 when the size of the Indian economy is expected to be US $ 4.5 Trillion.	**1.095**	**1.095**	**100%**	**1095**	**4981.155**	Given that India is going to be the largest growing market in the world over the next few years we do not expect business to move away from India due to the imporition of this tax. The Imposition of this tax has been considered in the latest meeting of the G 20 nations in 2009 and It has also been supported for implementation by none other than our own RBI governor Dr. D SubbaRao in Dec ' 2009. Since 90 % of the worlds forex transactions are cleared in just a few financial centres globally , it will not be difficult to impose this tax which can provide much needed funds to Education and Healthcare projects in Rural India.
5	**Yearly Rent From Re-developed PSU Land** by the Indian Social Infrastructure Corporation (ISIC) Under The Urban Equity Withdrawl Programme **(Phase I) .**	**3.00**	**3.00**	**100%**	**3000**	**13647**	Subsequent to the sale of 3000 Acres out of a total of 30,000 Acres of prime real estate in Indian Cities, The ISIC will publish a Global Tender Inviting leading Urban Developers from around the world to come to India to develop Large Real Estate Projects. 27,000 Acres of Urban, Government owned land will be put out on bids under a Public Private Partnership. Indian companies will participate in the bidding rounds and will compete with foreign companies. The bids will require project developers to pay an upfront annuity / yearly instalment of US $ 3 Billion for the 27,000 acres taken together over the first 10 years and submit plans for the development of Financial centres where the ISIC will be the owner of 50 % in each project. Developers will need to come up with ideas whereby the net earnings to the ISIC will be of the order of US $ 10 Billion each year from the 27,000 Acres of prime real estate starting from the 7th year after the Bidding. This effective Urban Equity Withdrawl plan will provide funds for rural development.
6	**Yearly Rent From Redeveloped PSU Land** by the Indian Social Infrastructure Corporation (ISIC) Under The Urban Equity Withdrawl Programme **(Phase II) .**	**10.00**	**10.00**	**100%**	**10000**	**45490**	Phase II cashflows will begin to accrue from year 7 onwards as the PPP projects in Urban Development begin yielding a return of US $ 10 Billion to the ISIC as explained under **V** above.

Assumptions On Financing / Sources Of Funds :

US $ / Rs Exchange Rate (18th march 2010) 45.49

Sl. No.	Source Description	Estimate of Total Possible Corpus (US $ Billion)	Notional Amount Potentially Available / Year (US $ Billion)	% Of Source Proposed For Education Megaproject	Amount Available Each Year (US $ Million)	Amount Available Each Year (Thousands of Crores)	Remarks / Critical Assumptions
7	**Teacher / Content Outsourcing Business :** The Education Megaproject will be employing approximately **1.74 Million Teachers** across India on 5 year Rolling Contracts. It is proposed that the terms of the contracts be flexible enough to permit teachers to organize themselves into teams which could then, in an organized manner , produce education content for the world market. The revenue earned through this venture will be shared by teachers and the ISIC in the ratio 60:40 with the larger sum going to the participating teachers. They will also participate under the Aegis of the ISIC in a Teacher Exchange Programme with schools in foreign countries. For the purposes of this calculation the total teacher strength is assumed as 1.74 Million. It is further assumed that just **50** % of the teachers will participate in this venture and that each teachers extra earning potential is Rs 5,50,000 each year.	21.04	10.52	40%	4207.52	19140	It is being assumed that revenues from the **Teaching Content Development Business** and the **Overseas Teacher Exchange Programme** will be shared by Teachers / ISIC in the ratio 60 :40, with **60** % of the revenues going to the teachers. We have therefore included only the balance 40 % of revenues as ISIC Income. Further , we do not believe that this activity will disturb teaching activity in the country as teachers have considerable amounts of free time and because the schools have been overstaffed by design not just for sharing teachers with 420,000 existing and deprived schools but also with this kind of revenue opportunity clearly in mind.
8	**Students on Fractional Vouchers / NRI Quota and SAARC / Foreign Students :** A majority of the students within the Megaproject will be on Education Vouchers (60 - 70 %). However some 37 % + of the students from middle class families and well off families will be on **fractional vouchers** with 2 / 3rd subsidy and an additional 2 - 3 % could be from SAARC countries or NRI / Foreign Students who will pay a premium (Double The Voucher value).	5.10	5.10	100%	5103.80	23217.18	Fees for Children will be quite affordable to parents as they well be charged at 1/ 3rd of the value of the voucher. In the case of Day schools fees will be in the range of Rs 25000 / child and in the case of fully residential schools, fees will be in the range of Rs 65,000 - Rs 75,000 which we believe are very affordable for the Middle Class and above.
ONE TIME FUND FLOWS - DIRECT FINANCE FOR CONSTRUCTION							
9	Coordinated Equity Withdrawl By the ISIC on PSU Owned Land in Metros and Large Cities	40	40	100	40000	181960.00	The procedure for this is explained in great detail in the project concept document under construction phase financing.
10	Un-Utilized Funds with various Ministries and NGO's	21.59	21.59	100	21590	98212.91	This financing option has emerged through a study of the Comptroller & Auditor General's report (CAG Report) for 2007 - 08. A special audit committee will be constituted to trace and recover this money for the Education Megaproject.
11	Equity Infusion By Promoter groups for **25,500** Day Schools and **4500** Residential Schools	6.74	6.74	100	6741.48	30666.98	This money will come from the Promoters of **30,000** Schools over a 10 year period (2012 - 2022)
12	Committed and Un-Utilized Funds Lying with the World bank and the Asian Development Bank, on which the government of India is paying Commitment Charges of over **Rs 125 Crores** each year.	15.6	15.6	100	15600	70964.40	This financing option has emerged through a study of the Comptroller & Auditor General's report (CAG Report) for 2007 - 08. Usually World Bank / ADB Loans are available for specific projects and cannot usually be re-assigned , We believe it will be possible to lift the entire corpus for this single Education Megaproject as the project subsumes within itself areas as diverse as Women and Child health and education to rural sanitation and rural roads etc.

Assumptions On Financing / Sources Of Funds :

US $ / Rs Exchange Rate (18th march 2010) 45.49

Sl. No.	Source Description	Estimate of Total Possible Corpus (US $ Billion)	Notional Amount Potentially Available / Year (US $ Billion)	% Of Source Proposed For Education Megaproject	Amount Available Each Year (US $ Million)	Amount Available Each Year (Thousands of Crores)	Remarks / Critical Assumptions
OTHER POTENTIAL SOURCES OF FINANCE							
13	In early March ' 2010 , India's Foreign Exchange Reserves stood at **US $ 278 Billion.** This is a huge sum and it has earlier been suggested by several others that a small part of the RBI's reserves should be used to finance Infrastructure projects in India. Schools represent essential social Infrastructure and the Education megaproject could draw on some of this resource.	278	2.78	1%	2780	12646.22	The Education Megaproject **has not included** Foreign Exchange Reserves in its sources in the current **Rev 03** of the project. This represents a potential future source of finance.
14	Dis-investment in Indian Public Sector Entities and Banks. This represents a huge potential scorce of funds . However successive governments have been using dis-investment proceeds to help bridge the huge fiscal deficits that the government of India runs. In fact this money is best used to finance productive capital expenditure as in education projects that greatly enhance the country's GDP. If **US $ 1.7 Trillion** is to be invested in Infrastructure over the next 10 years, **the first sector that will expand exponentially is banking.** Government of India will do well to dis-invest it's stake in a few large banks to raise additional resources while at the same time allowing a greater private sector role in the banking industry , with strict controls in place of course.	30	3	10%	3000	13647.00	The Education Megaproject **has not included** Dis-investment proceeds in its sources in the current **Rev 03** of the project. This therefore represents a potential future source of finance.

EDUCATION MEGAPROJECT - OVERALL CAPEX / OPEX SNAPSHOT OF PPP SCHEME

Cash Requirements Summary

		Bootstrap 1	Bootstrap 2	Phase I		Phase II			Phase III								
US $ / Rs Exchange Rate (18th march '2010)	45.49																
Item		**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Teachers Training Institutes (Lot @ Rs 8 Crores Capex & Rs 4 Crores Opex for each per year)		250	250														
Pilot Projects (Schools in 28 States + 7 Union Territories) ... 85 % day schools and 15 % Residential Schools		35	35														
Masons Training Institutes (Lot & Rs 5 Crore Capex and Rs 2 Crore Opex for each / year)		60	60														
Day Schools			850	2125	2125	2550	2550	2550	3187	3187	3187	3187					
Commissioning Sequence (For Initiating Opex)					850	2125	2125	2550	2550	2550	3187	3187	3187	3189			
Cumulative commissioned					850	2975	5100	7650	10200	12750	15937	19124	22311	25500			
Residential Schools			150	375	375	450	450	450	563	563	563	563					
Commissioning Sequence (For Initiating Opex)					150	375	375	450	450	450	563	563	563	561			
Cumulative commissioned					150	525	900	1350	1800	2250	2813	3376	3939	4500			
Total Schools Construction Started Each Year			1000	2500	2500	3000	3000	3000	3750	3750	3750	3750					
Commissioning Sequence (For Initiating Opex)					1000	2500	2500	3000	3000	3000	3750	3750	3750	3750			
Cumulative commissioned					**1000**	**3500**	**6000**	**9000**	**12000**	**15000**	**18750**	**22500**	**26250**	**30000**			
Costs Of Teacher Sharing Programme																	
Costs Of Teachers Guest houses (A total of 4,20,000 Guesthouses will be built under the teacher sharing programme)					**14000**	**35000**	**35000**	**42000**	**42000**	**42000**	**52500**	**52500**	**52500**	**52500**			
Fuel Costs Of teacher sharing programme : Rs **11.56** Lakhs / School / Year to cover 14 assisted schools	0.116				**115.6**	**404.6**	**693.6**	**1040.4**	**1387.2**	**1734**	**2167.5**	**2601**	**3034.5**	**3468**	**3468**	**3468**	**3468**
IT System for Existing Schools ... (% Complete)		20%	40%	40%													
Total Cost Of System with alerts @ Rs 500 Crores :	500	100	200	200													
IT System for Megaproject Schools ... (% Complete)																	
(Launching of 12 Satellites + Using 4,00,000 Km of Existing Fibre Optic **Across 30,000** Hub School and **420,000** Assisted Schools Via VSATS)		0	0	0	758	1895	1895	2275	2275	2275	2843	2843	2843	2843	0	0	0
% Completion		30%	70%	100%													
Forming and Staffing Of the ISIC with Average Salary @ Rs **20** Lakh / Year = Rs 450 Crores (Fully Staffed as below)	450	135	315	450	450	450	450	450	450	450	450	450	450	450	450	450	450
(**50** Senior Educationists , **300** Finance Professionals, **1200** Project Engineers, **300** IT Professionals, **100** Lawyers, **300** Architects)																	
Opex Cost of Teacher Training Institutes		1000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Opex Costs of Masons Training Institutes		120	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
Development Of Vernacular Languages + Urdu+ Hindi + Sanskrit					933	2333	2333	2800	2800	2800	3500	3500	3500	3500			
Capital Expenditure **Rs.**(Thousands Of Crores)		3.00	13.319	32.371	45.273	54.405	57.813	59.153	66.824	71.938	73.949	73.949	35.610	10.051			
(US $ Billion)		**0.66**	**2.93**	**7.12**	**9.95**	**11.96**	**12.71**	**13.00**	**14.69**	**15.81**	**16.26**	**16.26**	**7.83**	**2.21**			
Total Capital Expenditure (**Rs Crores**)	597651																
Total Capital Expenditure (**US $ Billion**)	131.38																
Operational Expenditure **(Rs. Crores)**		1476.84	2998.68	3133.68	9565.31	25551.05	41396.80	60458.36	79473.25	98488.14	122327.60	146097.05	169866.51	193632.60	193632.60	193632.60	193632.60
(US $ Billion)		**0.32**	**0.66**	**0.69**	**2.10**	**5.62**	**9.10**	**13.29**	**17.47**	**21.65**	**26.89**	**32.12**	**37.34**	**42.57**	**42.57**	**42.57**	**42.57**

Assumed that 100 % of Pilot Cost borne in the same year

Nos Of Institutions

Assumed that In Actual Project Construction 60 % Cost is borne in the 1st year and 40 % in the second year

Opex To Be added

Taken as **US $ 5 Billion** over 10 years (**IT Infra**)

Costs of Essential Items in Crores

Capex & Opex to be be added depending on system needs and the extent to which the teacher sharing programme is implemented.

The Nataraja Foundation
www.nataraja.org.in

Sanskrit is possibly the worlds oldest language and it is dying in India. The Education Megaproject therefore allocates Rs **8000** Crores over 10 years to the promotion of **Sanskrit** in schools and for the digitizing of Sanskrit content as Sanskrit serves as the basis for several Indian and even international languages. This will reverse the huge neglect it has suffered neglect over the last 100 years . All other Indian Languages (**Tamil, Bengali, Marathi, Telugu, Gujarati, Kannada etc.**) including most importantly **Urdu** and **Hindi** together will receive an additional Rs **20,000** Crores over 10 years under the Megaproject for the development of digital content and opening of Institutions for scholars. Total Rs **28,000** Crores Encouragement of local languages will allow the poorest citizen to participate fully in the economy. We want every farmer and labourer to have an equal opportunity and language should not be allowed to be a barrier due to lack of Funds. The Education Megaproject has a special large budget for Vernacular Language propogation.

ANNEXURE II

Note : This is an important Annexure. Please refer to the detailed Excel Spreadsheet accompanying this document or downloaded from www.nataraja.org.in for dedails.

Annexure 3.0 MEGAPROJECT INFORMATION ARCHITECTURE

The Need For A Robust Information Architecture

Phase I of the Education Megaproject's IT implementation seeks to bring greater efficiency to the current flagship programmes of the Government of India such as the Sarva Shiksha Abhiyan (SSA) where considerable leakage is taking place.

One of the SSA's greatest weaknesses is that the opaqueness within the system makes it very difficult to find out where decisions are being held up. There is therefore no predictability in fund flows to the schools due to procedural delays within the central and state governments. In practical terms this means that once orders are issued and funds are sanctioned at the ministry level , there is no proper system to find out who is delaying things down the chain and why.

Secondly , as the Annual Survey of Education (ASER) report 2009 reveals, because of the lack of transparency in the system and layers of red tape , in many instances , even the headmasters of schools are not aware of the different grant components, when they will arrive or what they can and cannot be spent on. To add to all this are the SSA's rule based procedures which are too rigid and norm based which makes it very difficult to adapt the system to local needs.

To avoid such problems the Education Megaproject has adopted a truly next generation and advanced IT platform which will make people and their transactions totally transparent. The system will create dynamic, real-time digital dashboards with drill down capability combined with contextual alerts to identify potential and actual sources of problems within the system. Using this technology and its sophisticated protocols it will be possible to drill down from the national level to the state level to the district / taluka level and even to the level of the individual school. Therefore if someone within the system is holding up decisions, his / her name will be flashed as an alert both to his / her superiors as well as to the affected schools , thereby making the whole system extremely transparent and making it next to impossible for anyone to drag decisions.

Finally , the " contextual communications " platform chosen for the project will also allow for seamless migration from an ultra efficient project planning and execution phase to a state of the art operations experience. This system therefore overcomes all the shortcomings within the SSA and its associated Mid-Day Meal Scheme as regards their information systems by migrating the entire school system in India to an entirely different level of efficiency and accountability … at a cost which is a fraction of what we might imagine.

The Contextual Communications Platform

The Education Megaproject will be setting up a total of 30,000 new schools in 28 states and 7 union territories over a 10 year period. In addition it will set up a system to share teaching resources and content with between 7 to 14 schools within a radius of **50** Km of each of the 30,000 new schools so as to reach between 210,000 – 420,000 additional schools across India. This is a truly massive task and it will cannot be accomplished without a robust and scalable web based IT Platform that will monitor thousands of government offices and participating NGO's across India as they execute a project that has the potential to cover upto 126 million children simultaneously.

To meet the extremely demanding information standards of this huge social infrastructure project, for the purpose of IT system design , the Education Megaproject 's organizational

matrix is treated as a project enterprise that communicates information in real time across inter-organizational and intra-organizational boundaries in a manner that ensures three things :

1. Visibility / Transparency
2. Accountability & Measurement of Outcomes
3. Preservation of Context

The IT system will be required to connect hundreds of organizations , some with thousands of employees each as they play different roles during different phases of the project life cycle ranging from planning and scheduling to financing, procurement, execution and finally into operations where millions of education vouchers will need to be distributed, managed and monitored to gauge the performance of each child within the system by using among other tools the Unique Identification Number program of the government of India.

The Contextual Communications Platform and its digital dashboards will be implemented in two phases :

Phase I - Within the existing SSA and the Mid Day Meal Scheme, starting immediately so as to realize quick efficiency gains and to strengthen the SSA / Mid Day Meal System

Phase II – Within the Education Megaproject , starting with the planning phase and then moving into the operations phase

Making People & Their Transactions More Visible

One of the major problems with the SSA and its associated Mid-Day meal Scheme is its lack of transparency as has been explained earlier.

To solve this problem, in **Phase I** , the system will create dynamic, real-time digital dashboards with drill down capability combined with contextual alerts to identify potential and actual sources of problems within the current (SSA / Mid Day meal System). Using the technology it will be possible to drill down to the level of the individual school. If someone within the system is holding up decisions or diverting funds to un-authorised project codes, his / her name will be flashed as an alert both to his superiors as well as to the affected schools , thereby making the whole system extremely transparent and making it next to impossible for anyone to drag decisions or deviate from the program.

The drill down functionality will enable government policy makers and NGO's to move from summary information at a higher level to a lower level containing more detailed data by focusing in on any particular parameter " Context ".

Today though there is a lot of information available within the system , the information architecture that is currently deployed does not allow the system to operate in real time for it to be of much use. For instance the following link (below) takes us to a small village school in Betauli village , in the Jehanabad district in Bihar. There is a lot of data on this link about this village school dated Sept 2008 … but this data **totally useless** for operational purposes.

http://www.schoolreportcards.in/seeschoolreportdetail09.asp?cmbschool=10330300201&cmbstate=10&cmbdistrict=1033

The Megaproject's information architecture will be much more event driven. For instance, when funds are released by the ministry of HRD or the concerned state government, the headmaster of each school (based on a school code number) , through a simple internet

connection at the nearest town / village or SMS facility on his mobile phone will get an alert that the funds for his school have been released and it will also clearly state what the grant component can be spent on. This will cut the waiting time from a couple of months and endless visits to the district or state headquarters to a few seconds. **We have the technology to achieve this today** at a cost which is a fraction of what we might imagine. Government of India can contact any good technology vendor to get a quote for the installation of such a system wide information architecture.

The system will allow users to quickly move through the hierarchy of folders to find a specific file or to click through drop-down menus in a Graphical User Interface (GUI) such as a map . Clicking on a map of a particular state for instance will move you to a level of greater detail. Clicking on a district within a state will make all the schools within that district visible and so on.

While the data will be visible to all authorized personnel and even to the hundreds of participating NGO's over the internet , it will however have secure security levels and only authorized personnel will be able to make changes to the data.

The education megaproject will allow project officials, NGO's, Vendors and Contractors to scan transaction databases to access information on project schedules, progress reports, future tenders and new technologies / techniques used. They could for instance start with a general map of any region in India and then move through the hierarchy **of field to file to record**. The project will, in this regard , be providing considerable granularity that will allow drill down to the individual student level to monitor what benefits he / she and his / her parents are getting from the system by using in with the database of the Unique Identification Number Authority. All this information . across 28 states and 7 union territories bill be accessible to authorised organizations at the click of a mouse.

Teacher Absenteeism is a major problem in India and as mentioned earlier in most states , teachers do not bother to attend school for **25 %** of a working year. This means that teachers come to school for just 188 days each year. Since " Teacher Absenteeism " is such a huge problem and since tens of millions of children and their parents are suffering there needs to be a system that ensures teacher accountability. The Education Megaproject's communications platform will therefore be configured to allow access to NGO's who will input information / complaints regarding teachers attendance in village schools. Once a certain pre-determined score / instances of absenteeism is accumulated within the system regarding a certain teacher , the system will generate an alert and put in place a penal process with a show cause notice in the first instance. If the defaulting teacher does not reform , his / her habits, the system will generate termination of service proceedings against the errant teacher who will be dismissed from service for repeated defaults after being given a fair hearing by a district level education committee. If the district level committee cannot take a decision and default continues by the teacher , the system will refer the case to a state level committee which will follow a proper legal process consisting of hearings and the submission of evidence against errant teachers. Once a decision in the matter is taken by the state committee it will be final and binding on all concerned.

Charts and graphs for instance will provide a quick assessment of a single item by indicating whether the measured parameter is within set limits. Inter state and intra district comparison of schools will also be possible . Using this capability to reach into deeper levels of underlying information, administrators and NGO's who will be connected to the system will be able to quickly bring projects back on track by quickly isolating the source of problems and taking corrective actions by alerting / warning the schools concerned. Administrators will also be able to access the latest real time data and take relevant and speedy decisions. By comparison, the current IT architecture within the ministry of HRD / SSA provides static data that is 2 – 3 years old and therefore of little use in real time decision making.

Since everyone will be seeing the same underlying data , everyone will be on the same page as to what the situation is and what needs to be done to rectify the problem if any. Since the system will allow users to choose between various reporting formats (on the same data) , it will allow for data analysis according to various criteria to generate new insights and this will greatly help with further improvements to the system. The system will also have a powerful scenario planning tool that will help in project planning and scheduling as well as with operational issues so as to improve reach and ensure that every child in India receives a good education.

The Project Enterprise Structure

The Education Megaproject will be India's largest social Infrastructure project with perhaps the biggest impact on society that this country has seen since independence in August 1947.

The project will involve not just different government departments and multilateral financial institutions but also a huge number of Companies, Engineers, Architects, Law firms , NGO's , teacher associations , Village Panchayats , Urbal local bodies, independent consultants and environmental work groups. This kind of loose organizational set up requires a robust and scaleable platform to manage not just the huge real time information flows during the planning and execution phase but also during the operations phase and it requires to do all this while maintaining the " **Context** " of the communications at each step so that the organizations and the networks value increases over time.

To achieve these objectives, we have, at the concept stage itself conceptualized the Education Megaproject and its proposed network of partner organizations as a Project Enterprise. The following table shows how this concept differs radically from the earlier concept of a project from an Information Technology standpoint.

Table : The Education Megaproject as a Project Enterprise

Sl. No.	Attribute	Traditional Project Management	Project Enterprise management / Education Megaproject
1	Organization	Internal & Local	External & Distributed with Central & State Government sharing information and working with thousands of Participating NGO's
2	Participants	Relatively uniform teams	Diversified NGO's and Government / Project offices driven by the needs of different phases of the project
3	Orientation	Tasks and Processes	Deliverables & Results
4	Focus	Planning Scheduling and Cost Controls	Organizational Interactions and Knowledge Management
5	Scope Plans	Fixed but subject to frequent scope revisions	Fluid , but with recognition that Megaproject requirements will evolve over time
6	Collaboration	Sequential , depending on organizational structure	Contextual & Real Time

7	Sharing Content	Piece Meal	Massive sharing of knowledge content over a terabit capable network
8	Execution Structure	Self Sufficient & Isolated	Inter-dependent & Integrated
9	Attitude to change	Resistant	Recognized
10	Decision making	Single Project Leader	Distributed & Interdependent leadership
11	Execution Speed	Low to Moderate	High Velocity

Source : Various IT Vendors

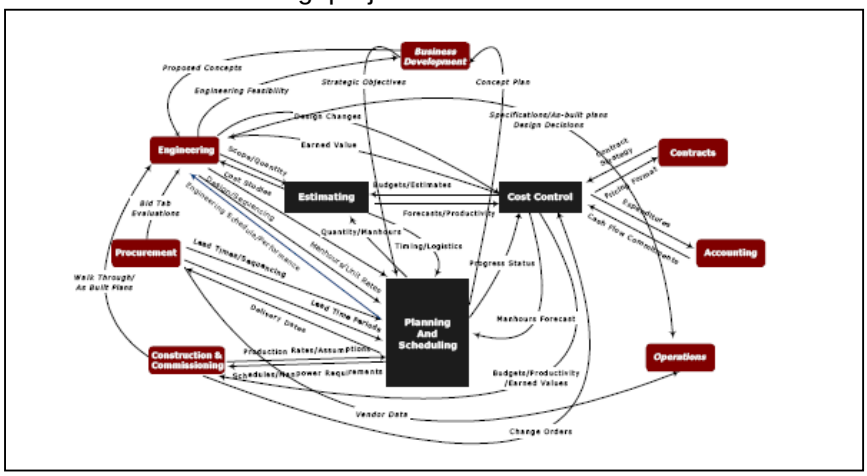
Efficient Project Enterprise Structuring

As stated earlier , The Indian Social Infrastructure Corporation (ISIC) , a statutory organization, set up under a specific act of Parliament will be the owner of this project (Not the Ministry of HRD).

Since requirements constitute the driving force behind any project enterprise , the ISIC as project owner will specify **project requirements** or formal objectives in a hierarchical manner (proceeding from Top Management level, more abstract elements to lower level, more specific ones). This **Taxonomy** or hierarchy of requirements may include project / material / performance specifications, tasks, milestones, deliverables or procured items. Requirements structured in this manner will provide the foundation for allocating work to relevant project entities , Government offices , NGO's & individual school operators and their personnel, describing each element along a number of dimensions and establishing workflow processes.

A similar structure is also required for the **response view** of the enterprise which is the approach that articulates how the owner (**ISIC**) specified requirements will be met. Once requirements and associated responses are structured within the project enterprise structured platform, there is a need for a **linkage tool** that maps out one or more responses to a certain owner specified requirement.

The schematic below shows the project control information flow pathways that ensure efficiency and real time control right from concept to completion and into operations of the 30,000 new schools and their participating network of between 210,000 - 420,000 schools under the Education Megaproject.



Source : www.pointcross.com , Rahbar 2000

Schematic Source : Pointcross.com & Rahbar 2000

Implicit in the above matrix of relationships is the understanding that the requirement-response-linkage triad is a dynamic structure , which evolves over time as the enterprise proceeds from concept to completion. Further as the enterprise proceeds through time, a project response for one phase will become a foundation for a set of requirements for the next phase. The Education Megaproject has been organized into 2 bootstrapping phases and 3 major execution phases to ensure that learning in these phases in incorporated into the implementation during the next phase. In all these phases, requirements and responses are mapped depending on the context.

Data Centricity

The Context based communications platform adopted for the Education Megaproject is a data centric platform and not a document centric one. This implies that within this project's ecosystem , raw data are separated from their representational schemes (i.e documents) as has hitherto been the normal practice in most projects.

A major advantage of data-centric solutions is that data manipulated in one place can automatically be updated in all other places. Therefore , multiple views of the underlying data (including documents) can be created by assigning various forms to the same data. Data-centricity, therefore, incorporates document-centricity and enhances it by allowing different representations of the same data.

Traditional, document-based approaches cause considerable re-work, tend to bury critical information in documents and e-mails and limit the ability of project entities to adapt quickly to new needs. A data-centric platform, on the other hand, inherently supports concurrent work, supports multiple and customizable views of underlying data elements, allows monitoring of relevant information to trigger workflow and alerting processes, and will ensure that participating government and private organizations & NGO's working on the megaproject can rapidly respond to changing needs.

Equally importantly, data-centric representation of project knowledge within any phase within the education megaproject automatically creates data liquidity for succeeding projects in all the 28 states and 7 union territories across India making it far easier for the staff and participating organizations within the megaproject to transmit data into e-procurement engines and internet based administrative protocols. The use of a generic framework, which supports a hierarchical structure to represent project requirements and responses will allow concerned government organizations, companies, school operators and participating NGO's to treat major systems and subsystems as objects that can easily be transplanted from one project enterprise to another like building blocks.

This is a major step towards the standardization of processes and uniform application of best practices within government offices , participating NGO's and each of the 30,000 new schools that are to be set up . Within this component - based approach, data structures in the project enterprise IT platform will become the building blocks from which complex social infrastructure projects in India can be

easily assembled at any time in the future. Such an adaptive, reusable approach to future project enterprises has significant cost, time and quality implications that will save the government of India thousands of crores of rupees in the future.

The Need For Contextual Communication

E-mail and Conferencing which we take for granted today , were designed for person to person or group to group correspondence. Such tools are so commonly and frequently used in today's work environment, that we do not easily realize that they are actually not conducive to efficiency and re-use in a learning and growing organization.

The education megaproject therefore seeks to move social infrastructure planning, execution and operations within the government of India to the next generation of re-useable experience on a more advanced communication platform.

To understand the concept of " context " we only need to observe that the "subject" of an e-mail need not necessarily be the " context " to which that e-mail belongs. For example, a subject marked "Design Change Request" may relate to the school roof design in one context, and to the interior design of a class room in another. The fact that multiple contexts and subjects may be buried within the e-mail only complicates matters further. All of these situations can cause information to be overlooked, lost, improperly filed, or simply ignored resulting in huge amounts of useful information lying forgotten in millions of emails. Context switching therefore with the objective of re-use , is a very expensive and wasteful exercise, and forces each email recipient to maintain separate filing systems (folders) simply to keep track of communications as this context specific e mail requirement cannot be easily supported by current e-mail systems which in turn leads to confusion and cost and time over-runs in projects.

The Education Megaproject therefore ensure seeks to that e-mail communications for the project enterprise will be context-to-context rather than person-to-person. Person-to-person email will then only be used for confidential personal communication that both author and recipient have no desire to share with anyone else. In this way the system will ensure that all personnel authorized to see the communications are able to see it.

This also implies that contextual e-mail messages can also be automatically triggered by workflow alerting engines. Email exchanges within the megaprojects contextual communications platform system would also take the form of threaded discussions to further preserve context. Such a system would obviate the need for separate e-mail organizing systems, and create a self-organized decision trail for future reference freeing up considerable time for more productive work.

Conferences and instant messaging are to be treated in much the same way. This simple yet powerful concept will allow all organizations participating in the education Megaproject to become more event driven and concurrent.

Work Breakdown Structure (WBS)

The Education Megaproject's contextual communications architecture will need a WBS that splits work, in a time bound manner between various government departments , the Indian Social Infrastructure Corporation, Participating NGO's and actual school operators. The creation of this WBS is one of the crucial requirements for the efficient execution of the project.

Hitherto, Traditional project management software systems used for resource allocation have been indifferent to the content in work elements that drive the allocation process. This is not the most efficient way to do things and therefore the WBS associated with the Education Megaproject has been made a part of the body of knowledge that describes requirement or response work elements, at different levels of the WBS to greatly increase the efficiency of execution of the various elements of work.

Many project management software systems have excellent tools for managing resources once work assignments are decided; therefore, an implicit requirement of the Education Megaprojects enterprise IT platform is that it should interface with such tools. When this is supported, adoption of the new technology is facilitated because it builds upon practices that team members have become accustomed to.

Workflow Processes

The term "workflow" is used in this context to describe relationships of various work elements (specifications, milestones, deliverables or tasks) in a project enterprise. The enterprise IT platform must provide support for defining dependencies among work elements to create the network of activities that must be orchestrated to ensure that milestones and deliverables are successfully attained. Creating such dependencies at the context of each work element ensures that relevant team members know exactly what is to be accomplished and when. As previously indicated, because electronic communications are also tagged to the context, automated procedures can be initiated when certain project thresholds are achieved , to remind team members about critical workflow events.

IT Enabled Construction Standards and Specifications

The Education Megaproject will have a huge team of around 300 Architects and 2000 project managers / project engineers employed over a period of 10 years to execute the construction phase of the project.

To greatly simplify the work of the different construction companies, masons cooperatives and government organizations who will approve the construction drawings and Material Take Offs (MTO's) , it is envisaged that the project architect's committee will standardize **6** different school designs that winning bidders in the school bidding rounds can choose from. Once the 6 different school designs are frozen , they will be codified and detailed material take offs will be prepared for each of the 6 different designs. The information pertaining to the MTO's and their associated costs will be fed into the system to which the projects registered vendors will have ready access. The system will also specify the protocols to

which interested vendors must conform to be eligible for consideration as a potential supplier of material and other services including labour. The masons cooperatives will specifically be trained to understand the simple procedures that they must follow to win construction contracts involving schools.

A major component of engineering / construction projects, and one that is usually handled as an island set of activities, involves systems (or process) engineering and contractual activities. These include industry - or company-defined standards and specifications, datasheets, and information pertaining to inputs, outputs and interfaces (e.g., such as those specified for plumbing and utility systems in the school project area). Similarly, contractual information involves extensive use of standardized contract vehicles, specifications, and administrative clauses.

Representing all of these types of information as data-driven templates within the context of relevant work elements immediately adds rich data warehousing and mining capabilities to the project enterprise platform. For instance, “smart” datasheets implemented as standardized XML templates allow equipment or component purchasers to add live data that can be queried, analyzed and responded to by relevant suppliers. These data can also serve as addressable information for use in engineering calculations. Bid tab evaluation processes to assess supplier responses are also easily automated and simplified with obvious time and cost savings. Further, packaging specifications and smart datasheets with contractual information allows project components to be seamlessly interchanged with e-procurement and e-marketplace engines with little, if any, rework effort. The time and cost benefits of such functionality are obvious.

Project Estimates, Budgeting, and Job Costing

During the front-end development as well as execution of the education Megaproject , estimation and budgeting tools will be an integral part of the project enterprise solution. Until scope definition is complete, or individual contracts have been awarded, estimation tools and historical data **from previous / similar projects** will be fed into the system database and made available to participants who bid on segments (say 20 schools) of the overall scope of work. After awards have been made, estimation tools must be replaced by a budgeting process that allows base-lined allocation of resources for scope execution. During actual execution, the process will transition to a job costing mode where the emphasis will be on capturing “actuals” pertaining to the use of material and labor resources, accounts receivable and deliverables.

The project enterprise structure must be segmented to allow management by designated authorities. For the purpose of simplicity , the Education Megaproject will vest the responsibility of maintaining all this data of the overall project enterprise with the ISIC which will be a single source of information and the repository which will mirror the individual project related databases of all the participating companies . The access to this back-end financial system must obviously be restricted from the front-end enterprise platform. This is because sensitive cost estimates and internal estimation tools should be accessible only to designated personnel from relevant companies. At present, each company maintains independent financial and accounting systems that capture transactions and maintain historical data, which are

used for estimation purposes. Integration to these systems in a secure manner is a desirable long term goal. The financial back end and all its associated transactions together with all its alert history will however be open to audit by the Comptoller and Auditor General of India on a continuous basis / On demand.

The budgeting process within the megaproject will use data from the estimating process and from accounting systems to maintain correlation between work elements and accounting budgets assigned to them. This process will also require integration with back-end accounting and financial systems if true seamless behavior is to be maintained. Note however, that scope elements would be tied only to the accounting system of the company responsible for that portion of the overall scope.

Budget interfaces between companies participating in the megaproject would be derived from the contractual elements and the underlying smart contract sheets (which are analogous to engineering datasheets previously discussed in the section on Standards and Specifications). This is because the budgeted cost of procured items is defined within the terms of the corresponding contract.

A very complex issue that needs to be addressed in this context is the fact that budgeted costs have a time dimension tied to events that may differ according to contract types. For example, in certain contracts, payments are tied to milestone events, whereas other contracts involve payments that are made on the basis of monthly estimates. Certain contracts may even involve payments that occur only upon delivery of complete systems. Most contracts also have complex holdback terms, and contingencies that need to be addressed. Therefore, the budgeting process must be capable of integrating all of these commitments and layering them into associated work elements (i.e., the WBS), which are bounded by individual contracts.

During execution, the Education Megaproject enterprise IT solution must support structured data interchanges (e.g., need dates and specifications) between relevant procurement systems. These may include back-end financial systems, supply chain solutions deployed by individual companies, or e-market/e-procurement engines. The ability to compute and present actual costs incurred needs to be supported in real time. This is important because real time data offer the only mechanism to truly tighten the project control loop. For example, labor costs in project budgets are usually captured at the employee's organization. Rather than re-keying these data, the long-term approach should focus on allowing linkages to back-end accounting systems within the Education Megaproject's backend. Until such systems integration tools are in place, direct entry may be required.

Material purchases, component delivery and contract milestone payments also need to be captured from accounting and financial software systems. Material delivery tickets and inspection certificates would also need to be posted and interpreted by the project enterprise IT solution. Likewise, labour resource projections, need dates, and scheduled dates must also be posted by the project enterprise solution to back-end accounting and order processing systems in order to completely close procurement and work progress loops.

It is conceivable that if back-end systems do not grow their internal capabilities to make such integration easy and dynamically configurable, project enterprise solutions will end up with the burden of supporting these transactions as well.

Document Management

We have previously discussed limitations of purely document-centric approaches within the context of project enterprise management. In many situations, however, documents (particularly school project blueprints , engineering visualization and design drawings) are important sources of knowledge. Their benefits can be best realized in an enterprise IT platform by designating a document management component within the context of each work element. This prevents the proliferation of documents across the enterprise space, at the same time ensuring judicious use of the content captured in them. Typical document repository features (e.g., version control with rollback features, mark-up capabilities, and viewing support for multiple file formats) should be provided with such functionality within the Education Megaproject's overall IT Plan.

Open, Extensible, and Scaleable IT Architecture

The Education Megaproject's IT Platform discussed under the " Contextual Communications " headline has been specifically designed to be user friendly. It is therefore capable of supporting the enterprise team instantly, out-of-the-box, and with minimum training. It is also capable of delivering functionality derived from integration with other organization applications. The solution is also scaleable as it can grow from a network of a few hundred locations during the bootstrapping phase to between 240,000 – 450,000 different locations at the end of a 10 year period from startup via its interfaces to the outside world which will be open and inter-operable.

Phase I of the Education Megaproject, which has been suggested as a way of strengthening of the SSA's information architecture will allow and indeed provide for a proper integration pathway with legacy or in-house systems of different Government of India Ministries that currently interact in the primary and secondary education space . This is to reduce data re-keying that may otherwise be required. Access to such resources would, of course, only be available on a secure basis to members belonging to these ministries and the ISIC which is the project owner of the Education Megaproject. During **Phase II** which is the execution phase for the 30,000 new schools , other project participants (e.g., EPC Contractors, Masons Cooperatives and participating NGO's) would typically be given access only to the direct functionality of the IT platform, and not to other internal networked resources. They would also participate only during relevant phases of the project lifecycle (not beyond it).

Such entities would need to deploy their own enterprise IT solution if they desire to build a structured knowledge base for use in other ventures. Integration pathways may include unidirectional or bi-directional data flow, on a real-time or event-driven basis, to one or more specialized software applications serving the needs of different business units. These units may include business development, contracts,

engineering, finance and accounting, procurement, construction and commissioning, and operations.

The Education megaproject , with its Internet-based suite of integrated business applications explicitly designed to meet the requirements of the project enterprise may therefore be very necessary for obtaining the best results to build on not just the economies of scale and scope but on the economy of Knowledge itself.

Note :

This note on IT applications within the Education Megaproject has drawn on literature published by leading thinkers in the area. The sources of the ideas have been mentioned under certain schematics. The designers of the Education Megaproject however do not intend the inclusion of the names of any particular vendor to be an endorsement of their products but just their ideas which are excellent. Government of India / ISIC is free to choose products from a range of competitors in the market.

Annexure 4.0 SURPLUS LAND WITH PSU's

Surplus Land Available With PSU's / Government Departments in Indian Cities & Towns

Fragmented Land Holdings Of PSU / Govt Departments is not conducive to good management and government needs to aggregate this land under **" The Indian Social Infrastructure Corporation "** So that a unified development plan can be prepared to bring maximum Social benefit to the nation under a coordinated **" Urban Equity Withdrawl Programme ".**

PSU's / Govt Departments can be given a generous share of the valuation upside on this land when FSI's are raised from current levels of 1.33 – 2.5 to between **12** and **16** . This will greatly simplify administration and save time for everyone by avoiding litigation from PSU Shareholders.

Table : 6 A Sample Set of Huge Land Valuations Lying Un-Used In PSU's

City	Sl. No.	PSU / Government Department	Current Size Of Land Bank (Acres)	Land lying un-utilized or in dilapidated condition (Acres)	Current Land Price based on recent deals (Rs Crores / Acre)	Practical Value Taken For Bulk Deals (Rs Crores / Acre)	Current Practical Valuation Of Surplus Land For Bulk Deals (Rs. Crores)	Current FSI	Proposed FSI Range	Possible Unlocked Value To Nation After Compensating PSU through TDR's / Cash through Enhanced FSI Sharing (Rs. Crores)
Mumbai	1	Mumbai Port Trust	1800	836	450	200	167,200.00	1.3 - 1.5	12 - 16	58520
	2	Food Corporation Of India	50	50	450	200	10,000.00			3500
	3	Rashtriya Chemicals & Fertilizers	800	100	450	200	20,000.00			7000
				Assumed that just **0.5** % of Vacant Railway land (i.e. **565** Acres out of 113000 Acres) is in large cities						
All India	4	Railways	113000	565	200	200	113,000.00	1.3 - 1.5	12 - 16	39550
4 Metros	5	VSNL Land with Department Of Telecom	770	770	200	200	154,000.00	1.3 - 2.5	12 - 16	53900
					One Lakh , Sixty Two Thousand , Four Hundred and Seventy Thousand Crores					
		Total Value Released From Small Sample Set of Just 5 organizations out of Hundreds of Surplus Prime Real Estate Owning PSU's / Govt. Departments in India								162470

Notes : Valuations / Acre will fall and so will Square feet rates once FSI's are raised ... A fall of 30 % in value / acre is being assumed when FSI is raised from the 1.3 - 1.5 band to the 12 - 16 band for the purpose of calculation

To Calculate Unlocked Value to the Nation for Social Infrastructure Projects in Rural Areas it is assumed that 50 % of the upside on the sale of the land with enhanced FSI is shared with PSU's / Government departments either as TDR's or given to them in cash.

Source Links For Above Table :

1. Mumbai

A. Organization : Mumbai Port Trust
Surplus Land = 836 Acres
Value Per Acre = 450 Crores (Based on Latest Deals in Mumbai)
Practical Value Taken For Calculation = Rs 200 Crores / Acre
Total Realizable Value For Education Megaproject = Rs 58,520 Crores
(After Giving BPT It's Share And after Accounting for Higher FSI's)

Source : http://timesofindia.indiatimes.com/city/mumbai/Port-trust-land-could-change-citys-face/articleshow/25703809.cms

B. Organization : Food Corporation Of India
Surplus Land = 50 Acres
Value Per Acre = 450 Crores (Based on Latest Deals in Mumbai)
Practical Value Taken For Calculation = Rs 200 Crores / Acre
Total Realizable Value For Education Megaproject = Rs 3500 Crores
(After Giving FCI It's Share And after Accounting for Higher FSI's)

Source Link : http://www.business-standard.com/india/news/fci-may-rent-out-property-to-unlock-realty-value/314421/

C. Organization : Rashtriya Chemicals & Fertilizers
Surplus Land = 100 Acres
Value Per Acre = 450 Crores (Based on Latest Deals in Mumbai)
Practical Value Taken For Calculation = Rs 200 Crores / Acre
Total Realizable Value For Education Megaproject = Rs 7000 Crores
(After Giving RCF It's Share And after Accounting for Higher FSI's)

Source Link : http://economictimes.indiatimes.com/markets/real-estate/news-/RCF-smells-a-goldmine-plans-to-sell-Mumbai-land/articleshow/2632496.cms

D. Organization : Indian Railways
Surplus Land = 113000 Acres
Surplus Land in Major Cities (Assumed @ 0.5 %) = 565 Acres
Value Per Acre = 200 Crores (Based on Latest Deals in Mumbai / Delhi)
Practical Value Taken For Calculation = Rs 200 Crores / Acre
Total Realizable Value For Education Megaproject = Rs 39,550 Crores
(After Giving RCF It's Share and after Accounting for Higher FSI's)

Source Links :

http://pibmumbai.gov.in/scripts/detail.asp?releaseId=E2009PR1392

http://www.rlda.in/presentation/Final%20site%20presentation%20Developers%20Conference%201.ppt#265

E. Organization : Department Of Telecom (DOT)
Surplus Land = 770 Acres
Value Per Acre = 200 Crores (Based on Latest Deals in Mumbai)
Practical Value Taken For Calculation = Rs 200 Crores / Acre
Total Realizable Value For Education Megaproject = Rs 53,900 Crores
(After Giving DOT It's Share and after Accounting for Higher FSI's)

Source Links :

http://www.thehindubusinessline.com/2009/08/13/stories/2009081351730400.htm