International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 SJIF 2023: 8.176 ISSN: 2582-3930

Blended Finance Model for Funding Infrastructure Projects in India

A preliminary study on requirement and applicability of blended finance model in India

Srinath Reddy Vanipenta

Consultant – Industries, Andhra Pradesh

Abstract - This research is mostly focused to identify the sectors where private investment is lacking and how blended finance can help to attract the private investors into those sectors. So, to identify the sector where private investors are worried to invest, we have to analyse the infrastructure investment in India over the years.

In this project we have analysed the data from 1991 to 2020. From this analysis we can observe that private investors are mainly interested in energy sector and transportation. The total cost of projects in water and sanitation was not even 1% of the total cost of all infrastructure projects in PPP and Private infrastructure projects. Only government has funded for the water and sanitation projects in India which accounted for 21% of total infrastructure investment by government. Projects related to these sector posses' high risk. The top three will be disputes between states, clearance from various bodies and land acquisition. Government alone cannot fund those projects they need private investor to pitch in for the projects. So, the risk allocation is crucial between the parties to make the transaction.

We have analysed all the key business models which are currently being used in India and understood the risk allocation. We have observed that in all the model's private players are taking the construction risks and, in some cases, risks during O&M stage also. If government is agreeing for annuity, then private investor is safe. By giving more support and confidence to private investor we can attract him into investing in water and sanitation sector.

This is where blended finance concept will be useful. In this concept we can address the problems for private investment. In this project we have suggested two ways. In the first way government will use concessional funds to attract private investment. Concessional funds can be from aided agencies or DFI. Use these funds to start the project and mitigate the early risks of the project so that private investor can be protected from them. Also, by using concessional funds the cost of capital will be reduced which will act as added layer of protection to private investor. In the second suggestion we will try to setup a risk guarantee or insurance funds for the project. Not necessarily government has to setup by using their funds. They can take assistance from MIGA which is actively working in these field. This can also give confidence to private investor to invest in these high-risk projects. From this study we have understood how to apply blended finance and which sector actually requires this concept. Further study is required on developing risk reward policies. This will be the most crucial and challenging part.

***Key Words*:** *Blended Finance, Infrastructure investment, Concessional funds, Water and sanitation, Private infrastructure investment*

1.INTRODUCTION

Infrastructure is considered as critical factor for faster economic growth. Economy needs a reliable infrastructure which will improve GDP of country. For any government developing infrastructure is a huge priority. This sector needs massive funding's but also risks associated with these investments are high. It also has a domino effect because various other industries are dependent on this sector. Infrastructure sector consists of transportation, energy, water, communication, and sewage.

Government of India has announced its ambition of 5 trillion-dollar economy by 2025. In order to achieve that ambition India needs a more robust infrastructure network. For that government is planning to invest 102 lakh crore into the infrastructure sector in next five years. But the real question is can government alone mobilize and invest that much amount into infrastructure.

Government alone cannot fund the entire amount required for infrastructure projects. Because government also has to provide funds for welfare schemes. So thus, private sector should also actively participate in developing infrastructure. Currently government has designed various models of PPP like BOOT, DBFOT, BOT etc to attract private investors into infrastructure sector.

PPP model will only happen when risk allocation is correctly understood by the private investor and government. But still there are some sectors where the risk percentage is so high private investors are not willing to participate. Because of fluctuations in the market investors are getting unsustainable results. In long term these returns are making Indian company's vulnerable. So, definitely India needs a robust system where there is better risk allocation between government and private investors. Recent trend what we can observe

is government is moving into HAM model to attract more private investment. But in upcoming years Blended finance will overtake this model.

Blended finance is the strategic use of development finance for the mobilization of additional finance towards sustainable development in developing countries (OECD, 2019). The main principle of blended finance is to "mitigate early-entrant costs or project risks, helping re-balance risk-reward profiles for pioneering investments and enabling them to happen" (IFC, 2019).

Blended finance 5 principles as per OECD

I. Anchor blended finance principle use to a development rationale (OECD, 2019).
II. Design blended finance to increase the mobilization of commercial finance (OECD, 2019).
III. Tailor blended finance to local context (OECD, 2019).
IV. Focus on effective partnering for blended finance (OECD, 2019).
V. Monitor blended finance for transparency and results (OECD, 2019).

2. NEED OF THE STUDY

India needs to spend 7-8 per cent of its GDP on infrastructure annually, which translates into annual infrastructure investment of USD 200 billion currently (Indiatoday, 2019). The major problem is to attract private investment in this sector. In 2018-19 private investment accounted for 14% to infrastructure development as per (Ministry of Finance, 2019). Currently in India private sector is investing in transportation and energy because of good returns. There are various sectors in which we have not seen much private investment. For example, water and sanitation which is included in sustainable development goals. Because of the stringent regulations private investors are not taking projects with high risk. Government alone has to invest and bear the risk. But what if there is a system where government invests to reduce risk so that private investor can participate. So, from this study we will try to understand about infrastructure India. Investments in these sector and future plans of the government. Understand the risk allocation in various business models. Check whether blended finance can address those challenges. Provide recommendations for the parties involved in this infrastructure sector.

3. OBJECTIVE

- To understand infrastructure investment in India
- To analyse the current business models for developing infrastructure in India
- To understand the classification of funds to various sectors in infrastructure
- To get an understanding about blended finance
- To suggest a way to incorporate blended finance in Indian scenario
- To critically analyse the challenges of implement blended finance in India
- To understand the advantages of blended finance in Indian infrastructure sector

4. SCOPE OF WORK

The main objective of this project is how blended finance can help government in getting more private investment for infrastructure projects. First, we have to identify the sectors where private investment is less. For that we have to analyse the investment in infrastructure from past to current year. Understand the trends and identify the sector. Find the reasons for less private investment in those sector. Do an analysis on current business models practiced in India and understand their risk allocation among government and private investor. This will gives us a clear idea why private investors are not interested in those sectors

Blended finance concept is not yet full developed. Still organization like OECD, SIDA and IFC are developing guidelines and policies for the projects. But they suggest that blended finance concept has to be tailor made to local context. So, in this project we will identify tools and mechanisms to implement in the Indian context. Try to create a business model specifically to implement this concept. And analyse the challenges in implementation.

5. LITERATURE REVIEW

(**Wilson, 2016)** presented about the challenges of 21st century. He mentioned that there is around USD 2.5 trillion financing gap approximately in developing countries. But also, we have pension and sovereign funds who are ready to invest for sustainable development. An example for blended finance between IFC and Goldman sachs'10,000 women. In this case IFC is about to invest USD 600 million and Goldman sachs will contribute 50 million. The main purpose of this project is to expand their financial services to small and medium enterprise owned by women in the emerging markets. Blended finance is useful in partial market failures undermine economic efficiency, including pioneering investments in high risk investments.

(Rodolfo Lacy, 2019) published a book regarding making blended finance work for water and sanitation. In this book they have mentioned that around 2.1 billion people lack access for clean drinking water and 4.5 billion people lack access to sanitation facilities. This sector has been historically financed by public funds. Major constraint for private investment is regarding profitability of business models. OECD with help of Swedish international development agency (SIDA) working on blended finance for water related

investments. The major findings (a.) Blended finance models are emerging but does not have a scale yet. (b.) Effective blended finance instruments include guarantees and technical assistance. (c.) Success depends upon tailoring investment to local context. (d.) Linking of blended finance with underlying values chain.

(Naeeda Crishna Morgado and Jens Sedemund, 2017) has mentioned that currently 167 donor facilities have been launched since 2000. Donor countries, NGO's and philanthropists are part of blended finance. Current major problem is that we don't have clear strategy or guidelines. Risk and reward sharing between parties involved can take time because policies are yet to be developed and they vary according to local context. OECD composed standards and goals of what blended finance should deliver. An example of Green cornerstone bond fund uses USD 235 million from IFC and mobilises USD 2 billion from various other institutional investors. The main aim is to encourage green bond market in developing countries.

(OECD, 2018) in this case study they have mentioned about the mobilisation of private investment. It can concessional and non-concessional which has to be used in strategically to boost the private investment. They have suggested to focus on untapped capital. To make blended finance successful it requires a cultural change. The risk return between the parties should be in such a way that private investor can get sustainable returns. The main risks are from political side. MIGA is playing a crucial role against fighting this issue. It has also mentioned about water and sanitation project in Philippines. Major finance came from Japan International Cooperation Agency (JICA) and private investors. This case study mentioned about various projects funded through blended finance. In India Tamil Nadu government utilized this concept to some sustainable development projects. Transparency and fairness are key in this process. Mainly for the infrastructure projects opportunity to participate should be provided without any bias. It will help in the growth blended finance model. Intermediaries are important because they are the who is going to make blended finance happen. ADB, MIGA and FMO takes this roles. They mobilize and provide guarantees for huge funds from various donor governments, non-government organizations and philanthropic funds. Rating agencies are crucial for attracting investment. Mainly the funds are going to be mobilized from insurance, pension, and retirement funds. So, rating agency has to evaluate critically risk factor.

(Ranganathan, 2018) In this case study they have discussed about a project in Jordan. Jordan is a rapidly growing city and has severe water scarcity. In this project they have used MCC's grant funds to leverage private sector funds. The main objective of this project is to reuse wastewater to reduce the demand on fresh water. For this project MCC contributes 97 million USD, Private lenders invested 146 million USD and through sponsor equity 8.5 million USD. The project was constructed in D/B model. The 3 phases of project are Water network, Wastewater network and WWTP.

(Morris, 2019) In his article he has mentioned about importance of policies and designing the infrastructure projects. So that we can reduce finance cost for the projects to attract private investments. States should strengthen their systems by developing innovative frameworks, regulations. Focus on developing capital markets for long term is crucial. Reforms are required for financial institutions in terms of limiting their capacity for good projects. Th investments from the foreign are always overstated. To develop reforms, we must look into macro-economic performance. Analyse the trends in the investment patterns for the infrastructure. Understand the risk allocation in various business models. Try to make it better for private investor so that it will reduce burden on the government.

(Ashwini kumar mishra, 2013) This research paper focuses on infrastructure investment in India. Analysis on relationship between economic growth and infrastructure. Identifying constraints for the investments in India. The analyses start from the 10th five-year plan. India recognized the importance of infrastructure for economic development in 11th five year-plan and focused on achieving 9% to 10% GDP growth in future. But the deficiencies in the capital and delivery of services was a concern. So, they looked at private investors to pitch in for developing infrastructure. According 11th five-year plan they projected 30% of investment should from private investors. For this government needed new business models like PPP. But to regulate the investments government also took several measures for faster approvals, improved transparency, and competitiveness. PPPAC has been introduced to scrutinize the approvals for the PPP projects. Cabinet Committee for Infrastructure (CCI) was designing policies and framework.

6. INFRASTRUCTURE INVESTMENT IN INDIA

India's is planning to become a 5 trillion-dollar economy by 2025. GOI is planning to invest 102 lakh crore to develop infrastructure. But does India really has that capacity to invest? If we look into our past during FY 2008 to 2017 GOI has spent 60 lakh crore. The GDP has decreased from 7% to 5.8% even after spending more amount into the infrastructure.

Table 1 Infrastructure investment in India

Plan	FY Year	Amount	GDP
11th Five-year plan	2008 – 2012	24 lakh crore	7%
12th Five-year plan	2013 – 2017	36 lakh crore	5.8%

Source: (Morris, 2019)

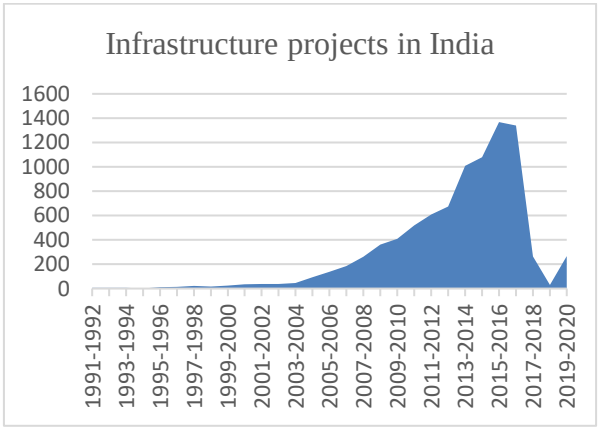

Figure 1 Infrastructure projects in India Source: (Department of Economic Affairs, 2020)

From the Fig 2 we can see the no of infrastructure projects in India from 1991 to 2020. Over this course of period India has completed 8865 projects. From 2007 there is a significant rise in the infrastructure projects. As mentioned in the literature review this was because of high priority to infrastructure in 11th five-year plan. Many reforms have been introduced and through PPP model government of India attracted private investment into this sector. Government tried to make infrastructure private friendly investment. At the same PPPAC was overlooking the approvals and transparency issues. During 2012 to 2017 the investment into infrastructure was at peak stage.

From the Fig 3 we can observe that no of private infrastructure projects increased from 2011-2012. And 2014-2016 was peak stage for private infrastructure projects.

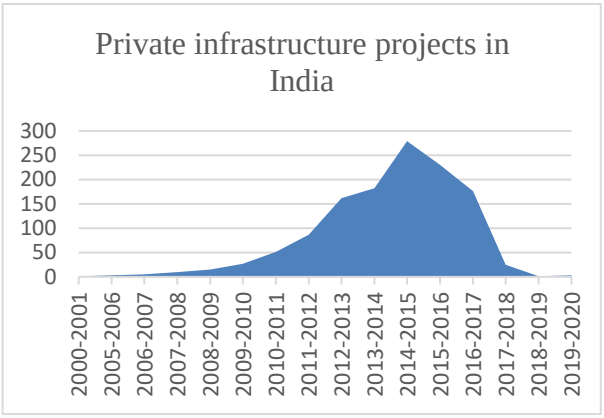

Figure 2 Private infrastructure project over the years source: (Department of Economic Affairs, 2020)

In 2019 the infrastructure investment in India accounted for 10 lakh crore. During all these years public sector accounted for 70% of investment whereas private sector invested remaining 30%.

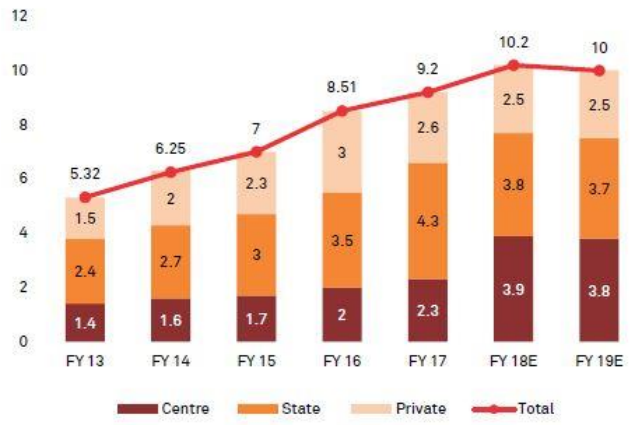

Figure 3 Trends in infrastructure investment Source: (Ministry of Finance, 2020)

And if we look into future investment in infrastructure. According to National Infrastructure Pipeline still they are expecting more investment from their side which is around 79%. And rest 21% will be invested by Private sector.

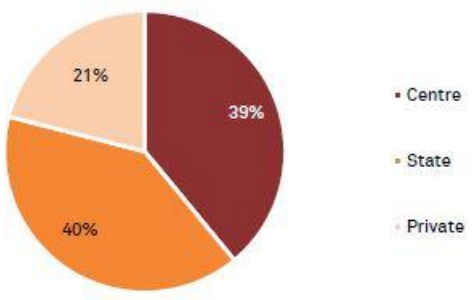

Figure 4 Future investment expectation source: (Ministry of Finance, 2020)

If we look at the status of the infrastructure projects in India.

Table 2 Status of infrastructure projects in India

Stage	Amount (In lakh crore)	% share
Under implementation	44	39.63963964
Conceptualization stage	34	30.63063063
Under development	22	19.81981982
Uncategorized	11	9.90990991
Total	**111**	**100**

Source: (Ministry of Finance, 2020)

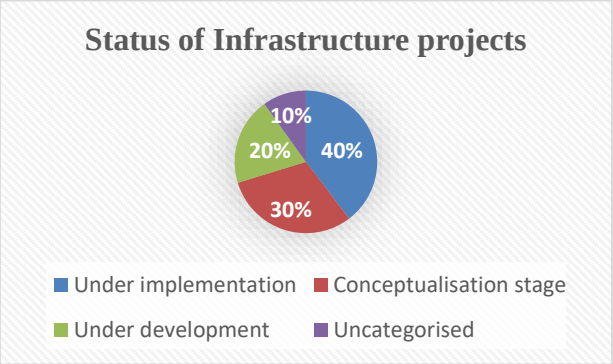

Figure 5 Status of infra projects in India source: (Ministry of Finance, 2020)

7. ANALYSIS OF CURRENT BUSINESS MODELS

7.1 Engineering Procurement and Construction (EPC)

In this model the complete funds will be provided by government. The contractor must deliver the project within time, cost, quality and performance parameters that has been predetermined. Contractor is responsible for engineering, procuring materials and construct the project. In this model the risks are transferred to private contractor. This model is dominantly used for projects with complex designs and engineering. EPC is used for projects like power plants, steel plants, petroleum, renewable energy, refineries, and treatment plants.

Table 3 Understanding EPC

Objective	Government focuses on creating an asset
Finance	Public sector entity
Payments	Based upon milestones
Project management	Construction – Private contractor
	O & M – Government
Risk Allocation	Construction – Private contractor O & M – Government

Key elements of EPC

a) Cost, Time, and Quality
b) Performance specifications are specified
c) Time certainty
d) Single point responsibility
e) Performance guarantee
f) Defect liability
g) Financial liability for delays

Analysis on the advantages of EPC

i. EPC is widely preferred for the complex projects by government. Mainly because in this model we can get cost certainty along with guaranteed timeline for completion of project.
ii. The performance of the project will be as per decided
iii. The complete responsibility of the project completion will be with single party.
iv. This model gives better control and supervision for the client.
v. The client can get post commissioning services from contractor.

Analysis on challenges of EPC

i. The main important challenge is of EPC is improper risk allocation.
ii. Monetary liabilities are huge which may tend to provide losses.
iii. There is no price escalation clause.
iv. Limitation on claims for additional money.

The below table shows the data of no of projects and their total cost in EPC till December 2019

Table 4 No of projects in EPC

No of Projects	Total cost
5973	34,39,118.54

Source: (Department of Economic Affairs, 2020)

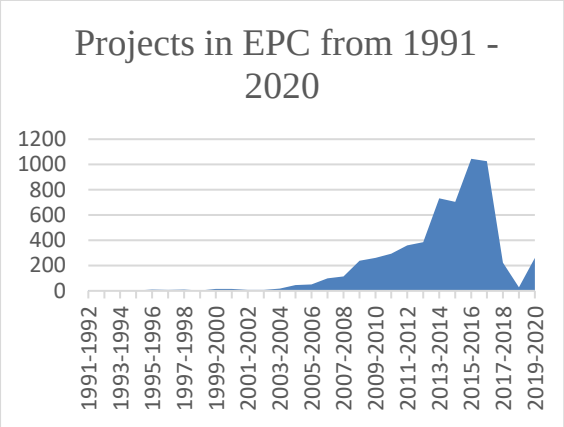

Figure 6 No of projects done in EPC model source: (Department of Economic Affairs, 2020)

7.2 Public Private Partnership (PPP)

The main aim of the PPP model is to attract private sector to invest in the infrastructure and related services. In this model the government and private investor agrees to provide an infrastructure service to public. PPP has been widely used in India for developing infrastructure. It reduces the use of public money and attract private investment into infrastructure sector. Various PPP models are been currently used in India.

Various parameters in PPP

- Risk allocation
- Investment responsibility
- Ownership of asset
- Duration of the contract

In PPP model we have

7.2.1 BOT(Build-Operate-Transfer)

In this model, public sector entity grants authority to a private sector partner to build and operate an infrastructure facility for fixed duration. After the completion of fixed duration that infrastructure facility will be transferred back to public sector entity.

Risk allocation (BOT -Toll) – During construction, the risk must be borne by private investor, but public sector entity may share demand risk.

Risk allocation (BOT- Annity) – In this model Public sector entity will bear the demand risk and private sector must bear risks during construction.

Some of the projects in India which are completed in this BOT – Toll model

- Delhi Gurgaon Expressway
- Amritsar interstate bus terminal
- Example for BOT – Annuity project
- Tuni Anakapalli Road project

7.2.2 DBFOT (Design-Build-Finance-Operate-Transfer)

This is similar to BOT but in this model private partner has a flexibility of detailed designing the project. The private partner has to focus on the output specifications written in the agreement. Private partner has to build, finance and operate the facility of fixed period. During this fixed period private partner will operate the facility but it will be owned by public sector entity. Some of the project done in this model

- Vijayawada – Gundugolanu stretch in Andhra Pradesh
- Goa/Karnataka border to kundanpur in Karnataka

7.2.3 BOO (Build-Own-Operate)

This model is also similar to BOT. Private partner builds and operate the facility. He is responsible for providing service to the users. Private partner owns the asset perpetually. This model can be used for large scale projects. But not often followed in India.

7.2.4 RFOT(Rehabilitate-Finance-Operate-Transfer)

This model is used to refurbish existing infrastructure facility. So, it is only applicable for brownfield projects. Under this model private partner enters into an agreement with public sector entity to refurbish, finance and operate the facility for fixed duration. After that fixed duration the asset will be transferred back to public sector entity. The risk will be less because it is not a greenfield project. All the data regarding cashflows will be available to make decisions.

7.2.5 Management contracts

In this model an infrastructure facility owned by public sector entity is given to private partner for O & M. The private partner will look after day-to-day operations of the facility. This contractual agreement duration may be typically 3 to 5 years.

7.2.6 Leasing

In this model private partner takes an infrastructure facility on lease from public sector entity. The lease

period may be range from 10 to 15 years. The private partner can charger from the users of facility. In leasing we have BLT(Build-Lease-Transfer), BOLT(Build-Own-Lease-Transfer). In this model's private partner leases out the facility to public sector entity and collects charges from them annually for the investment they have made. At the end of the lease period the facility will be transferred back to public sector entity.

In BTL(Build-Transfer-Lease) private builds and transfers the facility to public sector entity. And again, takes it on lease from them for O&M.

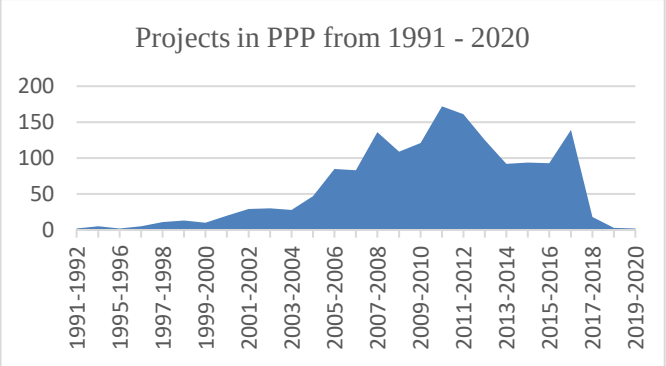

Figure 7 No of projects in PPP source: (Department of Economic Affairs, 2020)

Table 5 Total no of projects and cost in PPP

FY Year	No of Projects	Total cost (in crores)
1991 – 2020	1824	24,95,539.92

Source: (Department of Economic Affairs, 2020)

7.3 Hybrid Annuity model (HAM)

In this model public sector entity provides 40% of funds required for the project as capital grant over construction period. Remaining amount will be paid as fixed annuities to cover the bid amount. In this model government is taking the traffic risk. Currently it has been widely used for water and road projects.

Some of the projects done in this model.

- Water grid projects in Andhra Pradesh
- Highway project in Rajasthan

7.4 Joint Venture (JV)

For some PPP projects, a special purpose vehicle (SPV) is formed. This model is used when public sector wants to be involved in the management and operations of infrastructure facility. Public sector partner will be provide fixed assets like lands, buildings or facilities. Private partner will be responsible for design, construction, finance, O&M. Private partner is responsible for bringing the long-term equity capital and implementing the project. In case if public sector entity is also contributing long-term equity capital then it will be called as Joint Venture (JV).

Some of the projects completed in this model.

- Hyderabad and Bangalore Airports

The following table 5 shows the data regarding no of projects in India done on each model till December 2019

Table 6 No of projects in each business model

Model	No of projects	Total Cost (in crores)
BOT	1245	9,66,125
Lease	15	2215.51
Management contracts	49	10,564.64

Source: (Department of Economic Affairs, 2020)

8. CLASSIFICATION OF FUNDS

We will analyse the funds in the infrastructure in two sections. In first section we will be covering the investments from 1991 to present. In the second section the future investment plans of the government.

8.1 Past trends in infrastructure investments

8.1.1 Private infrastructure projects

Following table 7 is showing the data of private infrastructure projects in India. From this table we observe that the private investors are very keen interested in investing for energy projects. Some of the reasons are expected high demands of electricity in future. Government's initiatives for the energy sector. Sustainable returns and less traffic risk.

Table 7 Private infrastructure projects in India

Sector	No of Projects	Total cost (in crores)	% share of total cost
Communication	1	12,848	1.65
Energy	1160	7,11,188	91.37
Commercial and social infrastructure	83	47,935.66	6.158
Transport	12	5,941.46	0.76

Water and sanitation	5	436.7	0.056105878
Total	**1261**	**7,78,350**	**100**

Source: (Department of Economic Affairs, 2020)

8.1.2 PPP infrastructure projects

Following table 8 is showing the data of PPP projects in India according to sectors. We can observe that communication, energy, and transportation sectors are at the top.

Table 8 PPP Projects in India

Sector	No of Projects	Total cost (in crores)	% share of total cost
Communication	60	8,75,934	35.0
Energy	469	8,21,318	32.9
Commercial and social infrastructure	161	18,319.15	0.7
Transport	1015	7,64,007.00	30.6
Water and sanitation	119	15,960.66	0.6
Total	**1824**	**24,95,539**	**100**

Source: (Department of Economic Affairs, 2020)

8.1.3 EPC infrastructure projects

Following table 9 shows the data of EPC projects in India according to sectors. We can observe that energy and transportation are at top two places. Water and sanitation are at third place. In private projects and PPP projects the investment was less than 1% of total. Only in EPC it is 21%. So, we can clearly say that water and sanitation projects in India are funded by Public money. The data of EPC projects is from 1991 to 2026.

Table 9 EPC projects in India

Sector	No of Projects	Total cost (in crores)	% share of total cost
Communication	1	13,334	0.348
Energy	1882	15,57,839	44.098
Commercial and social infrastructure	79	27,726.86	0.709
Transport	2693	11,75,625.75	33.224
Water and sanitation	1432	7,64,593.42	21.659
Total	**6087**	**35,39,119**	**100**

Source: (Department of Economic Affairs, 2020)

8.2 Future trends in infrastructure investments

Government of India is Planning to invest huge amount in Infrastructure over the next five year. Accordingly, they have released some data of their plans.

Table 10 Funding for Infrastructure

FY Year	Amount ($)
2008 – 2017	1.1 trillion
2019 – 2025	1.4 trillion (planned)

Source: (Morris, 2019)

To achieved India's ambition of 5 trillion-dollar economy. GOI is planning to invest 100 lakh crore in this sector. The question here arises is does GOI have that much capability to invest.

Table 11 Allocation of funds

Sector	Amount	Percentage
Energy	24,54,249	23.94
Roads	19,63,943	19.16
Railways	13,68,523	13.35
Ports	1,00,923	0.98
Airports	1,43,398	1.40
Urban	16,29,012	15.89
Telecommunication	3,20,498	3.13
Irrigation	7,72,678	7.54
Rural	7,72,765	7.54
Agri culture and Food processing	60,553	0.59
Social Infrastructure	3,56,701	3.48
Industrial Infrastructure	3,07,462	3.00
Total	**1,02,50,705**	**100.00**

Source: (Ministry of Finance, 2020)

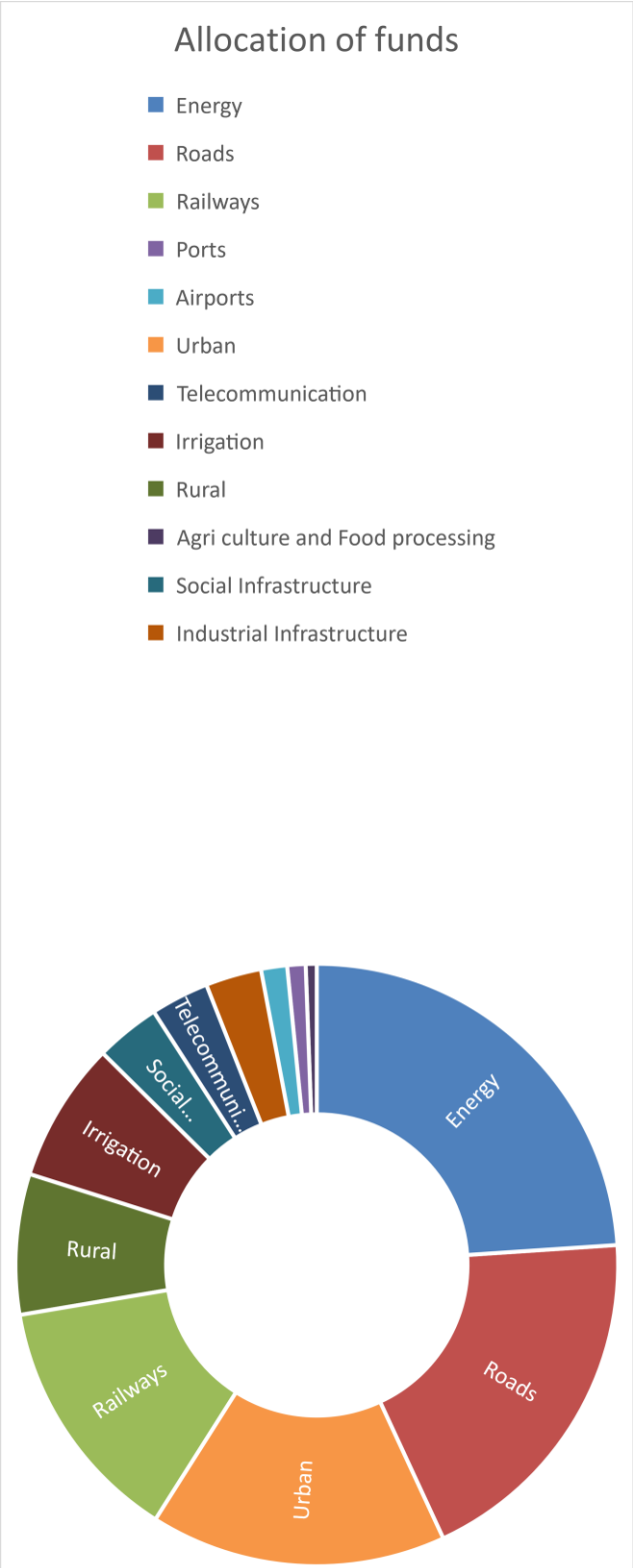

Figure 8 Graphical representation of allocation of funds Source: (Ministry of Finance, 2020)

8.2.1 Energy Sector

From the Fig 1 we can observe that the first priority for the government is energy sector. Two main reasons for this is

- Shifting from fossil fuel vehicles to electric vehicles
- Make in India initiative

Because of these two reasons there is huge demand for electricity. And this demand is very consistent which will give good returns for the people investing in it. If we look at the investment into this sector according to government "Between fiscals 2013 and 2017, the share of power sector investment in overall infrastructure investment was ~37% rising at ~8% compound annual growth rate (CAGR)".

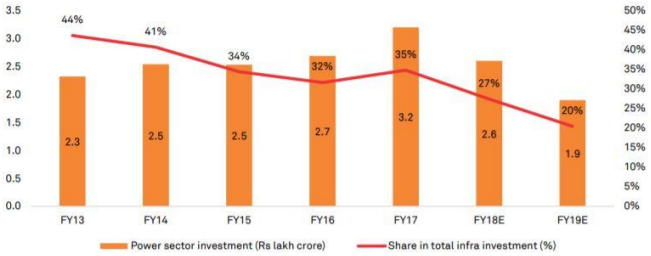

Figure 9 Investment trends in Energy sector source: (Ministry of Finance, 2020)

8.2.2 Road Sector

Second priority for the government is developing road network. The population and no of vehicles on road are increasing rapidly. Because of Make in India initiative Industries will look for well-connected road network. And also, lot of backward areas can be developed. According to government "The share of roads sector investment in the overall infrastructure investment was ~17% between fiscals 2013 and 2017, rising at ~16% CAGR".

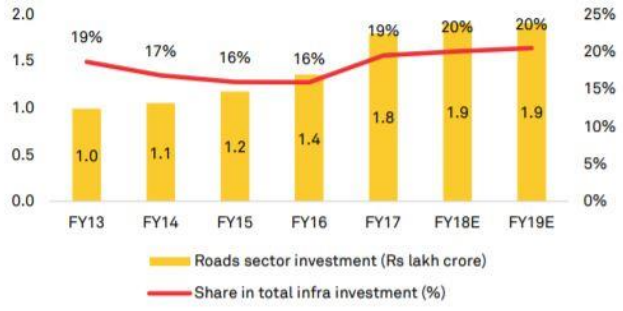

Figure 10 Investment trends in Road source: (Ministry of Finance, 2020)

8.2.3 Urban Sector

Biggest problem around the globe is rapid urbanisation. Cities are taking more than what they are capable. This is no exemption for Indian cities. To provide better facilities in the metropolitan cities and developing tier-2 cities GOI gave its third priority. Developing smart cities can improve the conditions of people living in that city. According to government data "s. Between 2013 and 2017, the share of urban sector investment in overall infrastructure investment was ~14%".

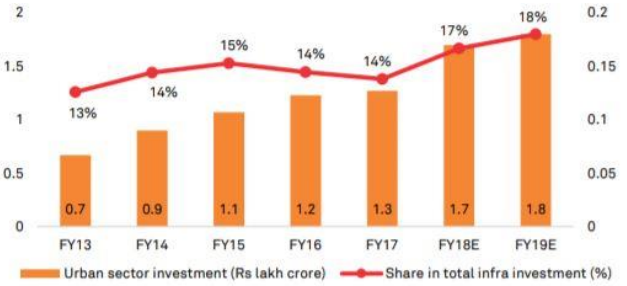

Figure 11 Investment trends in Urban infrastructure source: (Ministry of Finance, 2020)

8.2.4 Railways Sector

Indian Railways is the backbone for mass transportation of people and goods around India. But still, we can see railways facing losses. And railways have to invest in better facilities for people at stations and in trains, safety and increase the connectivity. Recently they have decided to welcome private investment into this sector. If this move becomes successful government can reduce lot of burden on them. According to government data "Between fiscals 2013 and 2017, the share of the railways sector investment in the overall infrastructure investment was ~8%, rising at a CAGR of ~23%".

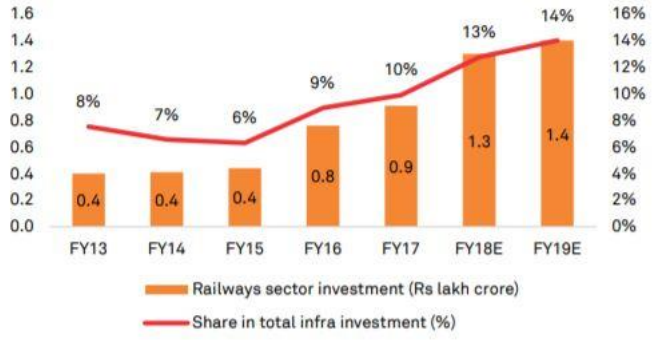

Figure 12 Investment trend in Railways source: (Ministry of Finance, 2020)

8.2.5 Irrigation Sector

Irrigation is very crucial because it is directly related to agriculture and rural areas. And agriculture sector is the highest contributor for employment of people. According to government data "During fiscals 2013 to 2017, the share of irrigation sector investment in overall infrastructure investment was ~9%, having clocked ~5% compound annual growth rate (CAGR)".

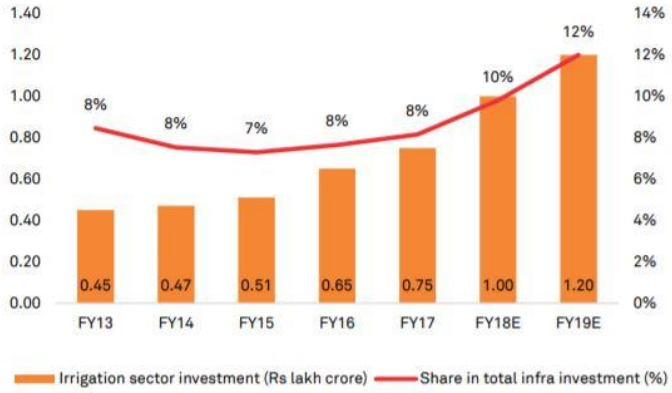

Figure 13 Investment trend in irrigation Source: (Ministry of Finance, 2020)

8.2.5 Rural Sector

Rural infrastructure includes water and sanitation facilities in rural areas. In India at present 65% of the population resides in rural areas. Water and sanitation are considered as basic facilities under sustainable development goals. Providing those facilities will improve the quality of life. This can also stop rapid urbanisation. GOI has introduced several schemes to develop rural areas. Those schemes mainly focus on providing homes, developing road network, clean drinking water and sanitation facilities.

9 BLENDED FINANCE IN INDIA

9.1 About Blended Finance

Blended finance is "the strategic use of development finance for the mobilization of additional finance towards sustainable development in developing countries" (OECD, 2019). Some development projects need huge capital and often those projects are associated with high level risks. And the capital from the private investors are not flowing into these sectors especially in emerging markets. Some of the reasons are unfair risk allocation, transparency issues and disputes in risk reward sharing. In those scenarios these concessional financing can be used to mitigate risks so that private investors will feel confident to invest. Basically, we are removing the barriers that are preventing private investors and bridging gap to invite them into investments in high risk projects.

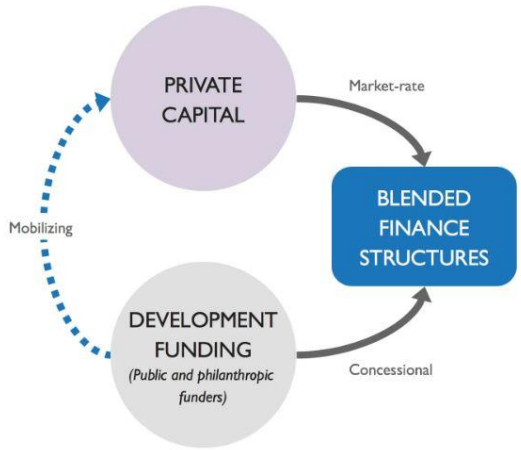

Figure 14 Blended finance structure source: (Convergence, 2020)

9.2 Principles of blended finance

1. Additionality & Rationale for Blended Concessional Finance (IFC, 2019).
2. Crowding-in and Minimum Concessionally (IFC, 2019).
3. Commercial Sustainability (IFC, 2019)
4. Reinforcing Markets (IFC, 2019)
5. Promoting High Standards (IFC, 2019)

The concept of blended can be used for high impact project where the private investment is less because of high risks or unsustainable returns for them. The main aim of blended finance is to attract investment into sector with high risk percentage but considered, as necessary.

9.3 Instruments to implement blended finance

- Currency of the country
- Equity (Domestic and Private)
- Risk guarantees
- Concessional debt
- Incentives based upon performance

Supporting mechanism for Blended finance

Usually, grants are used to attract private investments and mitigating risks. But apart from grants following mechanisms can be used effectively.

- Risk underwriting
- Market incentives
- Technical assistance

9.4 Implementing blended finance in India

In India to implement blended finance we have four structures

9.5 Concessional capital

In this concessional capital the government will reduce the cost of capital by providing funds lower than market rate. This can act as additional layer of protection for private investors. The funds from the government may be public money or philanthropic funds.

Finance structure

Commercial Debt/Equity + Concessional capital

9.6 Risk Insurance

Through insurances or guarantees below market rates government can provide credit enhancement.

Finance structure

Insurance/Guarantee + Equity/Debt

Apart from these two we still have Design funding and technical assistance funds. They are not included in the finance structure. But additional funds to support the finance structure.

9.7 Sectors to focus

From the chapter 4 we can clearly observe that government is focused on investing in energy, roads, urban infrastructure and railways. And private investment in these sectors is already flowing at good rate. Because of less risk and sustainable returns.

But what about sectors like rural infrastructure and irrigation. These are sectors are really crucial for India.

- By developing rural infrastructure, we can control rapid urbanisation
- Some researchers say that in future countries may have to fight water. To prevent that from happening we have invest for better water management to efficiently utilize the water available
- These sectors are crucial for achieving sustainable development goals

Traditionally from the past often the projects in this sectors are funded by public money. Two key reasons for this (i) High risks and (ii) Unfavourable risk returns for private investors. So, by using blended finance we can divert some private investment into this sector. For attracting the private investor, we have to focus on removing the barriers for them. First barrier is high risks associated to project. Government should focus on reducing the risks by taking care of early project risks.

For projects related to irrigation clearances and land acquisition are major risks. If government can fund the project at starting phase and take up the early risks, then private investor will be interested to invest. The second issue is with the risk returns of the project. Government should deploy public money or philanthropic funds at lower than market rate. So that capital cost of the project can be reduced. This help private investor to get better returns

Applying concept to a scenario

For implementing blended finance let us take a scenario. A project requires 850 crores to complete. It is a very crucial project for the government because of the welfare of people. But at the same time, the project is associated with lot of risks. Especially political instability, clearances and land acquisition. So, private investors are showing no interest in this project. Government does not have funds to construct the project. Because they have to continue the welfare schemes for people. But they want this project done. How can they finish this project?

Solution 1

First thing is to calculate how much government can spend for this project. For example, if they have 120 crores available with them which is ready to use. They can form an SPV in which they will agree to spend those 120 crores upfront of the project. Basically, during these period government will be dealing with risks so private investor is safe guarded from them. As the funds will be provided at lower than market rate the cost of capital will also be less. This is called concessional financing So; it is an added advantage for the private investor. On the other hand, with just 120 crores they have raised remaining funds and completed the project. It fulfils the definition of blended finance which is "strategic use of development funds to mobilize additional funds".

Solution 2

There is other way to complete the project. Blended finance is also about providing insurance or risk guarantees. Government can setup a risk fund of 120 crores or less based upon the risk percentage and cost of risks associated to the project. This funds will be used to safeguard private investor from the high impact risks. So, that private investor may fell confident to invest. For setting up these risk funds they can take assistance from Multi-lateral investment guarantee agency (MIGA) which is actively working in this field. Even for the projects related to sustainable development goals they offer political risk insurance and credit enhancements. Government can strategically tie up with MIGA to ask them issue insurances for the projects in their respective states or country. This will help in attracting huge private investment.

9.8 Challenges with blended finance

First challenge is lack of common understanding about blended finance. Aid agencies have different version from Development finance institutions about blended finance. For delivering the projects aid agencies prefer concessional finance. Whereas DFI's prefer non concessional funding to bring private investment. To make blended finance more effective a common understanding should be developed.

A pipeline of bankable projects is lacking. Because of this there is no clear flow of investment.

Getting funds from the institutional investors is very challenging. Two main reasons for this difficulty. (i) Capital market depth and (ii) Blended finance mechanisms are not fully available. Pensions and insurance funds are readily available to invest in emerging markets, but they are worried about risks.

Better risk management frameworks have to be developed. Current risk calculation and mitigation tools are not sufficient.

For high risk projects structuring risk reward is very difficult. There are no clear-cut policies on this issue. Disputes may arise

10. CONCLUSION

10.1 General

In this research we have started with understanding the infrastructure investment in India. How we have developed the infrastructure over the years. Importance of infrastructure for economic growth especially for emerging markets like India. Analysing the trends in the investments and understanding the priorities of the government and private investors. Understanding various business models which are followed in India and their risk allocation. Identfying barriers for the private investors. Learning about blended finance it's objectives, tools, and mechanisms to implement blended finance. We have taken a scenario and described on how we can apply blended finance. Analysed challenges in blended finance

10.2 Conclusions

From chapter 4 we have understood that government is focusing on energy and transportation sector. These two sectors are crucial for the economic development. Government has also succeeded in attracting private investment into these sectors. But as the water scarcity is increasing especially in the cities it is time to act. According to global reports several metropolitan cities in India will run out of water very soon. These metropolitan cities are considered as economic pockets of the country. It will be a disaster if they really run out of water. To prevent this from happening government should focus on developing smart water grids, more irrigation projects, inter linking of rivers, desalination plants and reutilizing wastewater. These projects are not cheap and associated with high risks because of disputes with other states, clearances from various bodies and land acquisition. Getting private investment is going to be challenge. And government alone cannot finish these projects.

In those situations, blended finance can be really helpful. Identify source of concessional funds and use it strategically to attract private investment. Or else use those funds to set up insurances and guarantees to give confidence to private investors. Only these two actions are not sufficient. Lot of reforms are required at state level to bring in more transparency into the system. One such reform is Ap judicial preview act in which any project worth more than 100 crore value the tender notice will be sent to judicial commission. In which judge will put display tender notice in public domain where people can provide suggestions. And they can also complain if there is any biasness. Changes will be made to tender by judge after discussing with this technical team. We need more of these reforms and at every stage of the project life cycle. Government should prepare a pipeline of projects with clear implementation strategy. Try to use best practices in risk management.

11 Future Scope

This project work will be helpful to understand the investment trends in India over the years. From that analysis we have understood that energy and transportation sector is getting sufficient funds from the private investors and also government. It's time to shift their focus towards water and sanitation. Try to get private investment into this sector. Still a lot of research is required in terms of applying blended finance. Currently organizations like OECD and IFC are working on developing guidelines. But still they suggest that guidelines should be tailor made to the project. So, India should start working on developing the framework for blended finance. From the concepts we have understood from this project we can further continue to investigate about developing a financial structure for every type of project. There is a requirement for developing risk reward sharing policies. This will be the most crucial and challenging part.

ACKNOWLEDGEMENT

The heading should be treated as a 3rd level heading and should not be assigned a number.

REFERENCES

1. Ashwini kumar mishra, K. n., 2013. Growth and infrastructure investment in India: Achievements, challenges and oppurtunities. Economic Annals, LVIII, No. 196(0013-3264).
2. Blended Finance Taskforce, n.d. Infra 3.0 Better Finance better Infrastructure, s.l.: Business and Sustainable commision.
3. Convergence, 2020. Covergence Blended Global Finance. [Online] Available at: https://www.convergence.finance/about [Accessed 5 4 2020].
4. Department of Economic Affairs, 2020. Infrastructureindia.gov.in. [Online] Available at: https://www.pppinindia.gov.in/infrastructureindia/web/guest/year-wise [Accessed 5 4 2020].
5. Development Commitee, 2015. FROM BILLIONS TO TRILLIONS: TRANSFORMING DEVELOPMENT FINANCE POST-2015 FINANCING FOR DEVELOPMENT: MULTILATERAL DEVELOPMENT FINANCE, s.l.: s.n.
6. Development of Co-operate Directorate , 2019. Bridging the Sustainable Development Finance Gap, s.l.: OECD.
7. Devvelopment Commitee, 2017. MAXIMIZING FINANCE FOR DEVELOPMENT: LEVERAGING THE PRIVATE SECTOR FOR GROWTH AND SUSTAINABLE DEVELOPMENT, s.l.: s.n.
8. giz, OECD, 2018. Blended finance for water investments. Echborn, Germany, s.n.
9. IFC, 2019. ifc.org. [Online] Available at: https://www.ifc.org/wps/wcm/connect/CORP_EXT_Content/IFC_External_Corporate_Site/Solutions/Products+and+Services/Blended-Finance [Accessed 24 11 2019].
10. Indiatoday, 2019. indiatoday.in. [Online] Available at: https://www.indiatoday.in/budget-2019/story/india-must-spend-usd-200-bn-on-infra-annually-harnessing-pvt-investment-a-challenge-eco-survey-1562075-2019-07-04 [Accessed 24 11 2019].
11. Mckinsey & Company, 2013. Infrastruture productivity: How to save $1 trillion a year, s.l.: s.n.
12. Ministry of Finance, 2019. Economic Survey 2018-19, Delhi: Ministry of Finance.
13. Ministry of Finance, 2020. National Infrastructure Pipeline, s.l.: Government of India.
14. Montgomery, E., 2008. Infrastructure in Inida: A vast land of oppurtunity, s.l.: PWC.
15. Morris, S., 2019. Financing infrastructure in India - Issues and the way forward. p. 25.

16. Naeeda Crishna Morgado and Jens Sedemund, O. D. C.-o. D., 2017. Blending finance for climate and poverty. Climate change.
17. NITI Ayog, 2019. Annual Report 2019-20, s.l.: s.n.
18. OECD, 2018. Insights from project level case studies on blended finance. Making Blended finance work for the Sustainable Development Goals.
19. OECD, 2019. OECD. [Online] Available at: http://www.oecd.org/development/financing-sustainable-development/development-finance-topics/blended-finance.htm [Accessed 24 11 2019].
20. Ranganathan, K., 2018. Jordan water compact. Blended finance in water sector.
21. Rodolfo Lacy, J. M. d. s., 2019. Making blended finance work for water and saniation. s.l.:OECD.
22. Wilson, G. E. R., 2016. The challenge:Can blended finance increase the scale and sustainability of of finance for development. Blending public and private funds for sustainable development.
23. World Economic Forum, 2015. Blended Finance Vol. 1:A primer for Devlopment finance and Philanthropic funds, s.l.: OECD.

BIOGRAPHIES (Optional not mandatory)

Srinath Reddy is working as a consultant for developing the food processing sector in Andhra Pradesh. He works in the O/o of Principal Secretary to Government (Food Processing) - AP Secretariat overseeing the implementation of AP Food Processing Policy 2020 - 2025 and Various other GoI schemes and Projects. The overall worth of the projects and schemes is more than Rs. 4000Crore

He began his career as a Business Development Associate for an Engineering Consultancy company based out of Mumbai. His major responsibility was to identify and expand the market to increase the revenue of the organization. Working directly under the top management he has learned exceptional problem-solving, negotiation, and proposal-writing skills. He was instrumental in creating a Pan India market database for the organization.

Srinath has done MBA in Project Management from the RICS School of Built Environment, Mumbai. And completed his under graduation in Civil Engineering from SRM University, Chenna