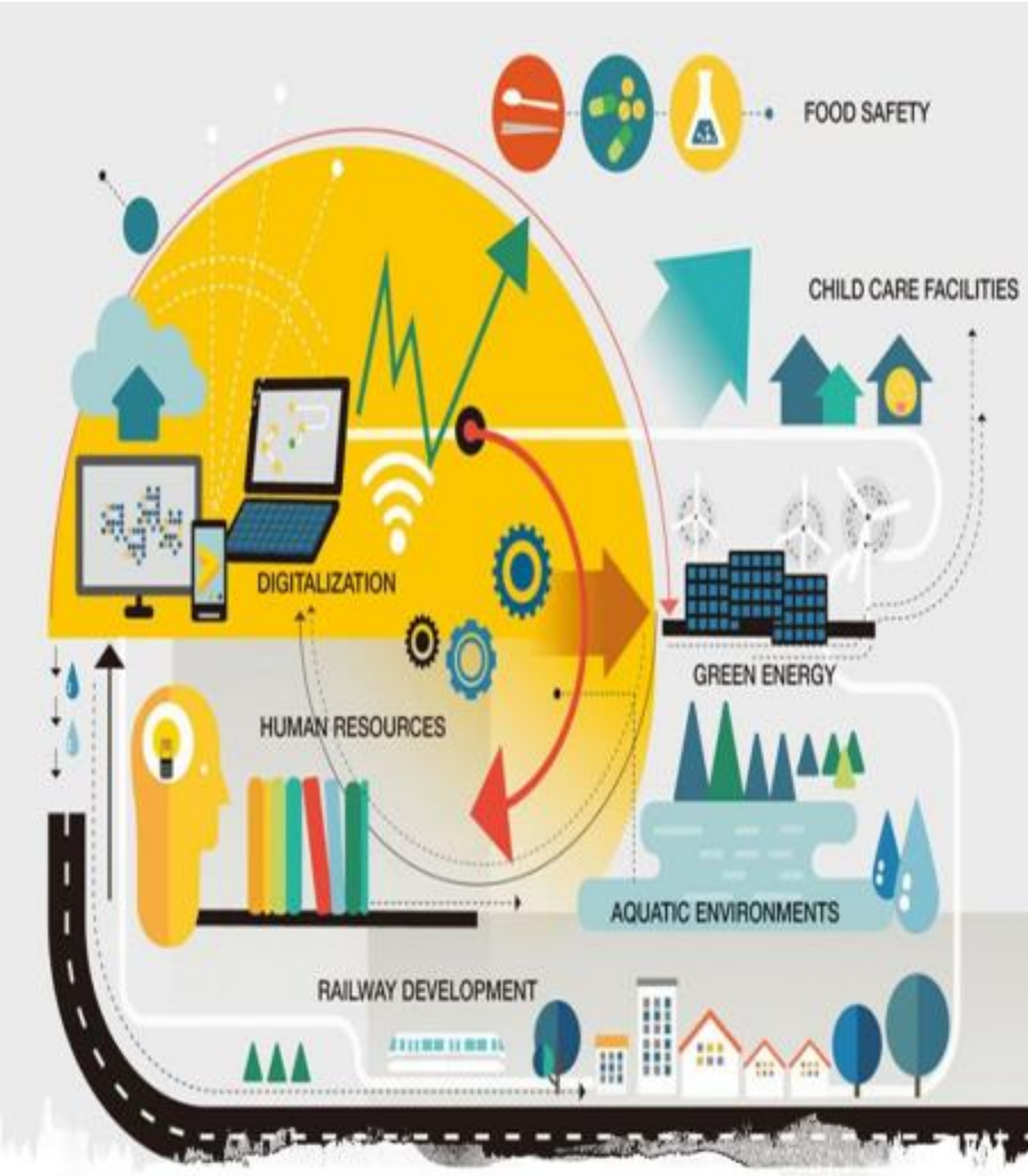

Alternate Finance for Infrastructure Development

-Kisslay Anand & Roshni Sekhar

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Introduction

The outbreak of the **COVID-19 pandemic has created global disruptions, with over 41 lakh lives being affected globally**. These challenging and unprecedented times have led the government across to pursue stringent containment measures which saw the slumping and clamping down of economic activities. For a country like India, which relies on its informal sector as the backbone of the economy, migrants, farmers, and workers engaged in MSME remain the most vulnerable. **According to International Labour Organisation (ILO) about 400 million workforces India would be impacted by it at varying degrees**. Some of the other affected sectors include tourism and allied industry, trade: exports, textiles, agriculture, among others. All of this becomes more pronounced for a country when the quarterly GDP consistently has been falling since Q4 of the Financial Year (FY) 2018, with the Q3 of the FY 2020 marking a growth rate of 4.7%. **The economy has already been facing demand-side problems, which has been further aggravated by various containment measures**. This has severely impacted the supply-side production of goods and services as well (with the exemption of essential goods and services) increasing the unemployment, lowering the industrial output, impacting trade, investments, and profits, among others. **Private consumption, investments, and external trade three significant contributors to GDP will be deeply impacted as well**.

However, at these challenging times, there are multiple opportunities to capture, which calls for a paradigm shift of economic policies. **China, one of the biggest manufacturing hubs in the world, faces pushback globally**. **The Japanese government has started paying Japanese companies to close down their manufacturing plants in China. Further tech-giants like Apple have also started planning their shutdowns or moving some parts of their operations**. **Thus, rendering it to be a propitious time for India to attract investments and scale up its infrastructure. Investments in infrastructure will assume centre stage post COVID19.** The aggressive push towards asset sales, monetization of infrastructure assets, and setting up of development finance institutions are some of the ways forward mechanisms. As per leading economists, **investing in the right infrastructure will stimulate economic gains through innovation and rendering social and economic benefits including the generation of more employment**. The need of the hour as per experts include the renewing urban infrastructure, enhanced energy efficiency, building climate resilience for the agriculture sector through research and development to ensure sustainability and engage the maximum workforce.

The task force bestowed with the responsibility of creating and upgrading existing infrastructure project **National Infrastructure Pipeline(NIP)acknowledges how infrastructure is critical for the growth of the nation and preparing for its manufacturing competitiveness** in its final report submitted to the Finance Minister. The report further stated that the supply additions through infrastructure development will boost short-term growth as

well as the potential GDP rate. As per the report the sectors. **Out of the projected total investments of Rs 111 lakh crore during 2019-20 to 2024-25 "Sectors such as energy (24 percent), roads (18 percent), urban (17 percent) and railways (12 percent) amount to around 71 percent of the projected infrastructure investments in India**.

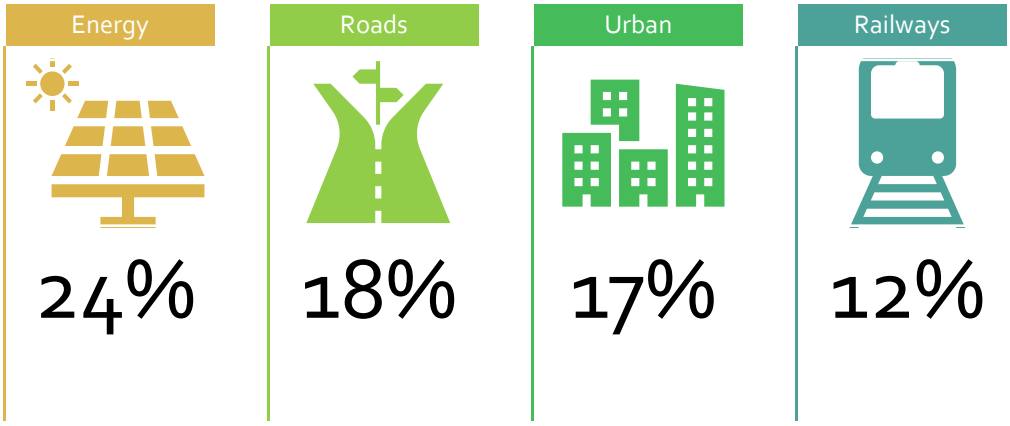


Figure 1: Projected Sector Investment in National Infrastructure Pipeline

Accordingly, the **Centre and the state will have an almost equal share in implementing NIP in India with (39%) and (40%) respectively, leaving 21 percent to the private sector**.

India already face significant infrastructure gaps at current levels of spending. As economies are impacted, India will come under increasing fiscal pressures, and private sector risk aversion will also remain elevated. As with past experience, economic growth declined and so did public investments in times of economic difficulties. **The disruptions brought about by COVID-19 also highlight the importance of sustainable and resilient infrastructure**. Firstly, India will need to increase investments in healthcare and public health infrastructure. This is **especially crucial in the context of megatrends such as urbanization and increased trade connectivity. Infrastructure development is a key part of health security and epidemic preparedness.**

Thus, the alternative financing for effective public finance management has become more imperative today with the government looking forward to more alternative finance models. In the following pages, we discuss the different alternative finance models along with best practices, the growth and status of alternative finance across the globe, the role of infrastructure in economic growth, and sustainable development.

Andhra Pradesh Infrastructure Summary

Adequate supply of quality infrastructure services is widely recognized as critical in delivering growth, reducing poverty, and addressing broader development goals. The double impact of Infrastructure on the society as a multiplier for economic activity and as a stimulator for social equality makes investing into infrastructure a high priority. This section contains overview and broad strategies for infrastructure sectors Transportation, Energy and Communications, Urban Infrastructure and Water Resources.

Energy

The growth of power sector must be guided along the principles of enabling or ensuring accessibility, availability, affordability of power for everyone, accountability of service, focus on renewable energy and energy efficiency in the system. The following are the five strategic areas the state will lay emphasis on:

- **High Seat for Smart Energy**
- **Focus on Sustainability**
- **Priority for Efficiency**
- **Rapid Capacity Addition**
- **Leveraging Private Participation**

Andhra Pradesh is blessed with good sunshine with average solar insolation of more than 5.0 kwh/sq. m/day. Especially, the scope of promoting solar power in the Rayalaseema belt is immense. GoAP has already announced the net metering policy for Rooftop Solar Power Projects for households, institutions, commercial and industrial consumers. It is proposed to install Grid connected Solar Rooftop Systems on all major Government buildings in the State. The Government buildings, hospitals, Public Health Centres (PHCs) in rural and semi-urban areas are proposed to be provided with Solar Off-Grid Systems with battery support. All the un-electrified and remote hamlets are proposed to be electrified through Decentralized Distributed Generation (DDG), Micro Grids etc., under Remote Village Electrification Programme (RVEP) with support from MNRE. The Southern region of Andhra Pradesh comprising of Ananthapur, Kadapa, Kurnool and Chittoor districts have good wind power potential. The estimated wind power potential in the State. The GoAP is bringing out comprehensive Wind Power Policy with provisions for sale of power to DISCOMs, Captive use, Sale of Power to Third Parties and REC route.

The upcoming renewable projects in Andhra Pradesh will be mostly developed by private developers & public sector companies, who will make equity contribution and borrow the remaining capital from market sources. Therefore, no Central Financial Assistance is sought in this regard. However**, in order to facilitate capacity addition and to keep the tariffs affordable, GoAP requires 500 Crore for development of Solar Parks. This includes roads, switchyards, water, and other basic infrastructure. For developing DDG schemes, rooftop solar projects, etc.**

Roads

Some of the important key issues and challenges which the road sector would be facing for meeting the aspirational targets are: Land acquisition, Delays in implementation of projects, Delays due to awarding project contract, Contract Management, Poor operational & maintenance, Road Safety, Lack of private sector participation, Lack of access to funds, and Lack of Institutional capability.

Ports

The critical bottlenecks which AP ports are facing are: Capacity utilization, Operational issue, Average parcel size handled at ports, High average TRT of container vessels, and Regulatory issues. The sector development is strategized to be developed through four-pronged approach as the guiding principles. This approach will address all the sector issues through strategic initiatives like: **Improving Operational Efficiency, Strengthening Hinterland Connectivity, Port linked integrated development, and efficient institution for port sector improvement.**

Airports

The key challenges faced by airports in AP include: Absence of airport infrastructure, Land acquisition, Lack of access to funds, Reluctance of airline service operators to commence operations from AP, and Institutional development. There are three broad themes that are as per prioritizing the issues identified: **Improving connectivity, Strengthening existing and developing Greenfield infrastructure to improve service delivery, and Institution development: Setting up of Autonomous Body for sector development – AP Airport Development Company (APADC).**

Urban Development

Andhra Pradesh is rapidly urbanizing with a growth rate of 7% in the last decade, accounting for nearly 30% of the state population in 2011. A strong correlation exists between urban population and economic growth, higher the urban population, greater is the economic growth due to agglomeration of resources, both physical and human. This calls for greater emphasis on improving living conditions and factors aiding economic growth in urban areas.

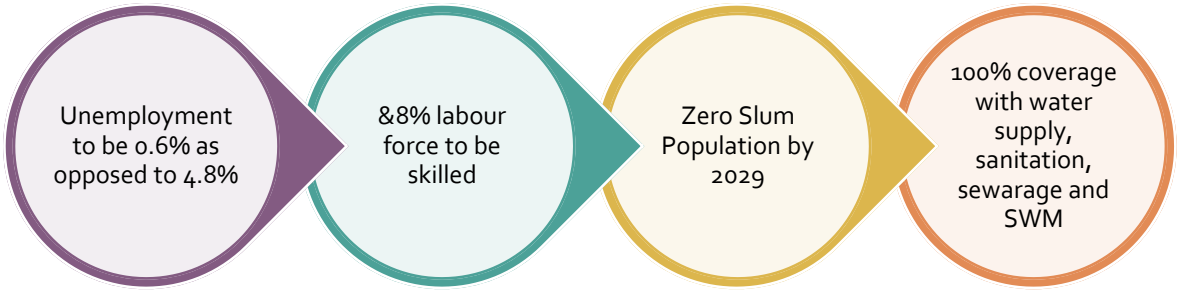


Figure 2: Broad Objective under Andhra Pradesh Urban Development

Urban development in Andhra Pradesh encompasses the provision of employment opportunities, affordable housing, reliable and convenient services, clean and green environment, as well as building accountable and financially strong Urban Local Bodies (ULBs). **The goals of urban development in Andhra Pradesh is to achieve a better quality of life and social inclusion for all urban residents, a higher rate of urbanization driven by industrialization and improvement of productivity, and sustainable urban growth.**

Water Resources

The vision for the water sector of Andhra Pradesh is to provide access to reliable, affordable, sustainable, and quality water supply by optimally conserving allocated water resources. It is aimed to fulfil drinking, irrigation, industrial, and environmental needs through efficient utilization of water resources.

Andhra Pradesh is currently the lowest riparian for 12 inter-state rivers, which implies possibility of a deficit monsoon due to delayed and insufficient inflows, and also hazards of floods. The state is mainly dependent on the Krishna and Godavari Rivers.

Currently, water utilization is skewed towards irrigation sector. **For Andhra Pradesh to move towards more industrial economy, appropriate water allocations need to be made for each sector due to which improving water use efficiency in the state is a priority area for the GoAP. The target is to increase the water use efficiency in agriculture to 60% by 2029.**

The total infrastructure investment ascertained after considering all the strategic interventions suggest that the state would require is around INR 13.10 lakh crore by FY 2029. *This investment excludes sectors like water, communication, and urban infrastructure.* Along with huge investment requirement, GoAP would also require mobilizing land and significant numbers of workforce for developing and operating the huge infrastructure asset.

Alternate Finance

Alternative finance refers to financial channels, processes, and instruments that have emerged outside of the traditional finance system such as regulated banks and capital markets. Alternative finance instruments include cryptocurrencies such as Bitcoin, SME mini-bond, social impact bond, community shares, private placement, and other 'shadow banking' mechanisms. Alternative finance differs from traditional banking or capital market finance through technology-enabled 'disintermediation', which means utilizing third party capital by connecting fundraisers directly with funders, in turn, reducing transactional costs and improving market efficiency.

Globally, the impact and role of alternative finance continues to grow, with alternative finance platforms having facilitated USD $304.5 billion in 2018.

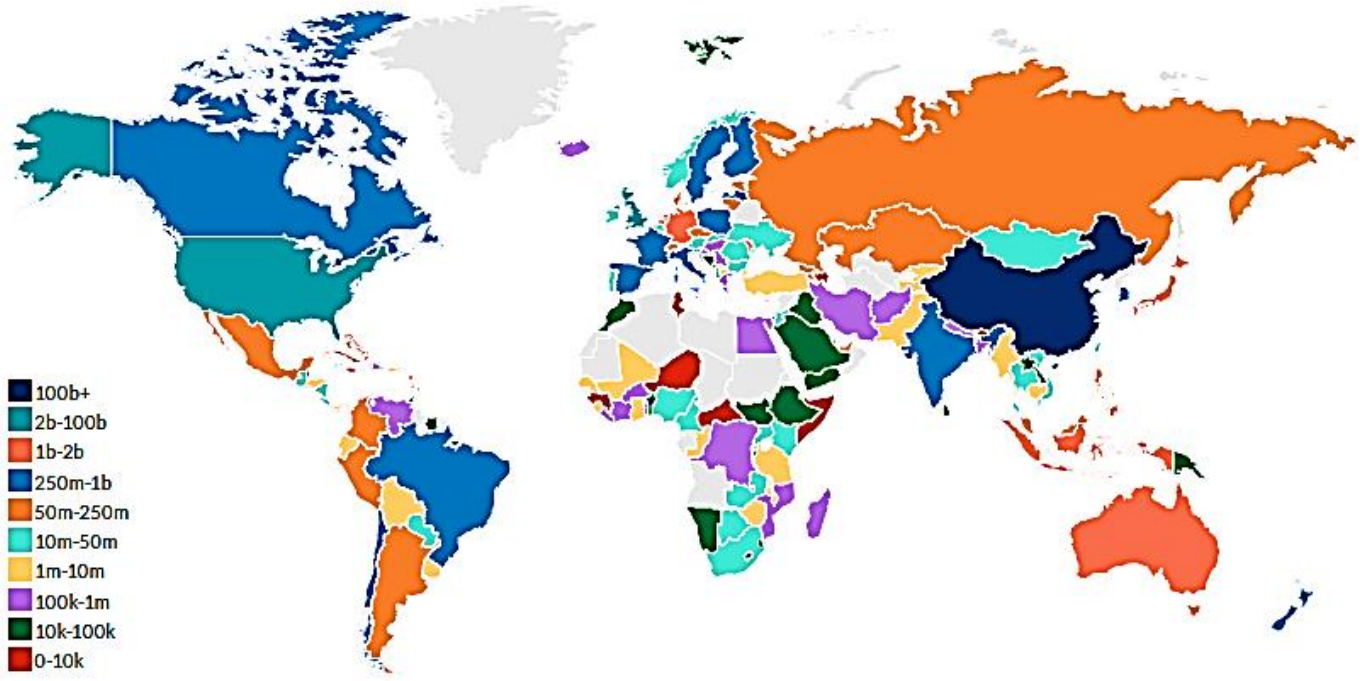


Figure 3: Comparative Market Volumes of Alternative Finance Transactions (2018) (Source: Judge Business School, University of Cambridge)

Alternative finance volumes generated in a country significantly correlated with number of platforms operating within it. The direction of causality is not clear- i.e. it is not clear whether market volumes indicate the potential triggering a proliferation of platforms, or whether more platforms are engaged in building up larger new markets for alternative finance. For instance, China having the largest overall number (429 local, 9 foreign, 438 in total) also had the highest country level volume. The next highest concentrations of firms were seen in the US (84 local, 16 foreign, 100 in total), the UK (63 local, 27 foreign, 90 in total), Germany (41 local, 22 foreign, 63 in total), **India (49 local, 9 foreign, 58 in total)** and Brazil (44 local, 12 foreign, 56 in total). With respect to volume, China, the USA, and the UK also account for the top three.

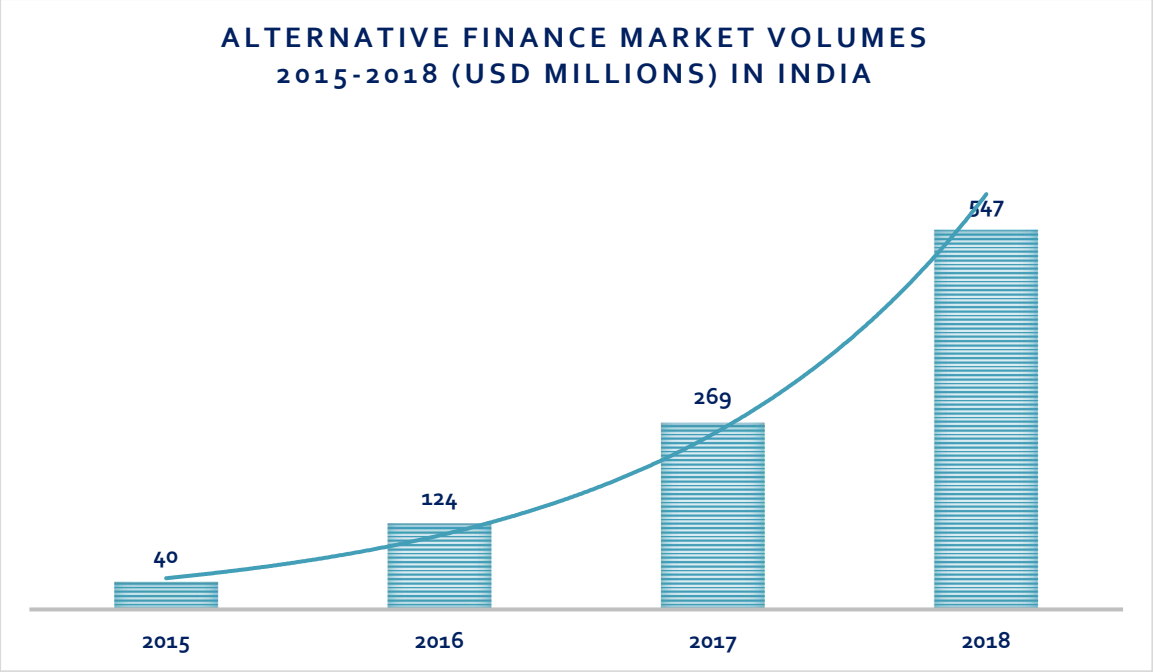


Figure 4: Data Source: Global Alternative Finance Benchmarking Report (Author's Visualisation)

India continued to lead the online alternative finance industry in South & Central Asia, with a total volume of $547 million in 2018, more than doubling their volume from last year. India ranked 14th (2017: 13th) globally in terms of market volumes, with a regional ranking at 5th (2017: 4th). Balance sheet Business Lending and P2P Consumer Lending were the two main drivers of the total volume, each accounting for 48.5% ($265.5 million) and 38% ($207.8 million) respectively. The total business funding volume was $311 million, and the overall percentage of institutionalisation was 83% ($454.5 million).

Social Impact Bonds

A Social Impact bond is a results-based financing instrument; the investor provides capital to the provider intending to progress towards specific targeted outcomes. It is defined as “an innovative financing mechanism in which governments or commissioners enter into agreements with social service providers, such as social enterprises or non-profit organizations, investors to pay for the delivery of pre-defined social outcomes. In financial terms, these are future contracts on social outcomes. Accordingly, they are also known as the payment-for-Success bonds (USA) or Pay-for-Benefits bonds (Australia). In general, as the environment for the impact bonds develops it will help in a detailed understanding of how evidence-based interventions work around the cost of delivering programs.

Stakeholders in Social Impact Bonds

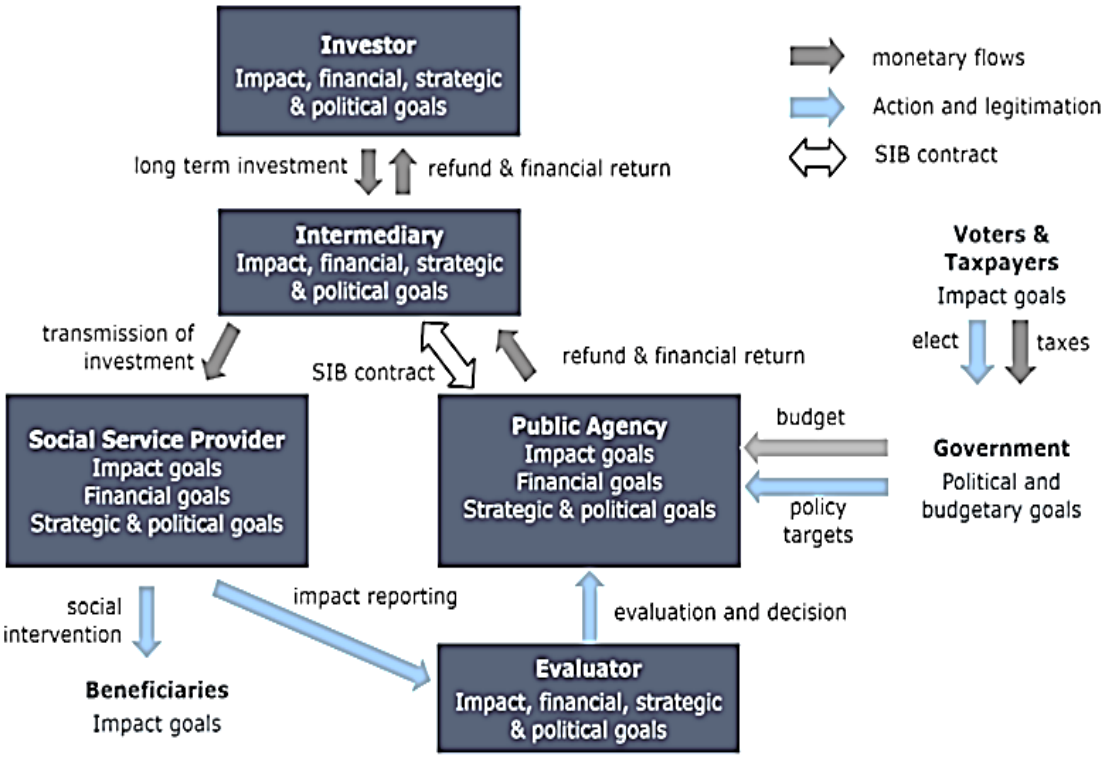


Figure 5: Social Impact Bond Model (Source: Maier & Meyer, 2017)

The principal stakeholders: The outcome measurement is the most crucial part of the SIB.

- An investor provides fund for an intervention- which becomes the working capital for a service provider, who is responsible for social services delivery, the attainment of agreed outcomes
- The payment to the investor (along with the agreed interest) will be released by the govt or commissioner, who determines the outcomes metrics and payments terms.

Intermediaries

- An intermediary can act as a convenor of all stakeholders involved or she/he can be responsible for raising capital and streamlining the deal.
- In some cases, an evaluator is used to assess the outcome and the impact.

Additional actors

- Based on the nature of the SIB, there may be additional participants in the mechanism occupying the roles of subordinate investors, guarantors, technical assistance providers, legal advisors, and researchers.

In addition to the principal stakeholder, all of the other agents differ from each other. For instance, the government could act as both an outcome payer and as evaluator through administrative data.

Case Study of Educate Girls Social Impact Bond in India

Goal of SIB: Enrolling out-of-school girls and improving quality education for children in rural, remote, and marginalized communities in 166 schools in Rajasthan.

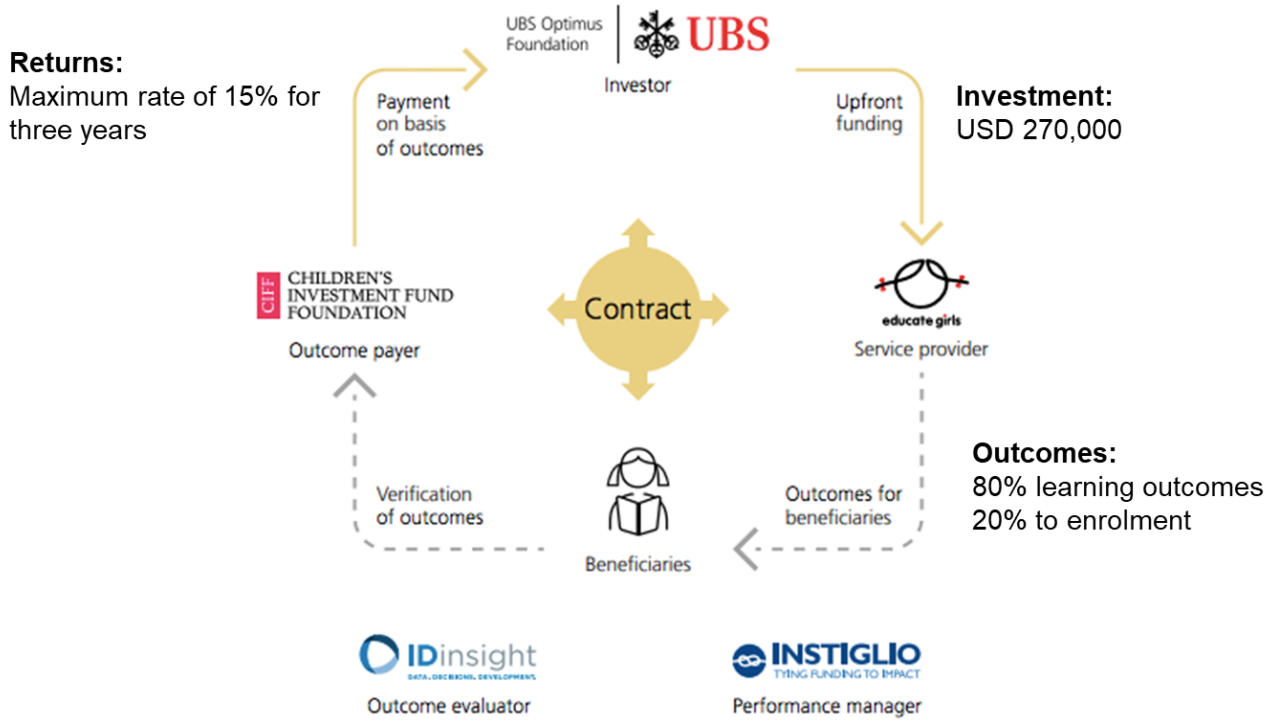


Figure 6: SIB Structure of Educate Girls (Source: Social Impact Bonds for Public Sector Reforms, Kisslay Anand and Aashir Suthar)

Problem

Enrolment: Nearly three million girls, aged 6 to 14, are out of school in India.

Learning Outcomes: Even if enrolled in school, many students are not acquiring foundational skills like reading and basic arithmetic that can help them progress in school and life.

Implementation Partner

Educate Girls, a Mumbai-based NGO, trains community volunteers to encourage families to enroll their girls in school by making door-to-door household visits and to deliver a child-friendly supplementary curriculum in classrooms to improve basic reading and math skills. Educate Girls currently operates in over 12,000 villages and 21,000 primary schools across 15 districts in Rajasthan and Madhya Pradesh.

Evidence Needs

The Educate Girls Development Impact Bond (EG DIB) is a joint project between the Children's Investment Fund Foundation (CIFF), Educate Girls, the UBS Optimus Foundation, Instiglio, and IDinsight (collectively, the "Working Group"). UBS Optimus, acting as the investor, financed EG's project implementation, while CIFF paid for educational outcomes as evaluated by IDinsight. Instiglio is managing the project.

Area of Operation: Bhilwara district, Rajasthan.

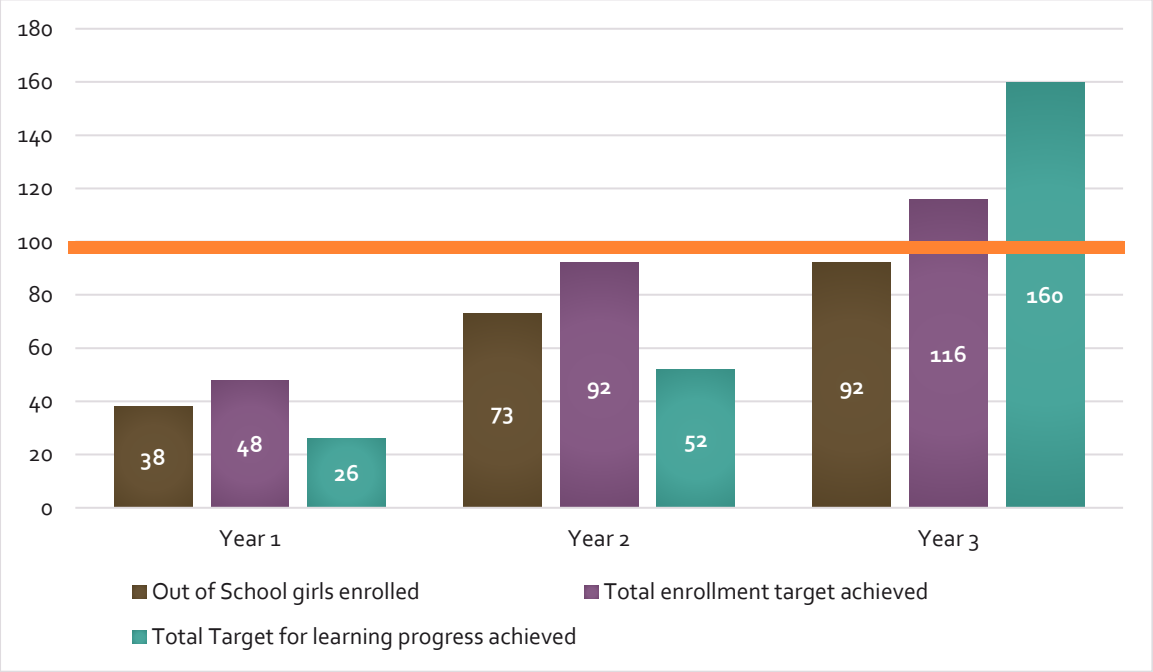


Figure 7: Progress Through SIB (Author's Visualisation)

The results after three years of implementation were impressive, surpassing the two target outcomes measured:

160% of the final learning target: In the final year, learning levels for students in program schools grew 79% more than their peers in other schools–almost the difference of an entire additional year of instruction.

Enrolment: 116% of the fnal enrollment target, 768 or 92% of eligible out-of-school girls identified in the program areas in Rajasthan, India were enrolled in school.

Learnings

- ➔ The SIB's underlying focus on outcomes and flexible funding structure provided the basis for Educate Girls to focus on outcomes and the flexibility to iterate on its program to achieve these outcomes. Educate Girls had a history of already working with enrollment targets internally. Participation in the SIB led to Educate Girls becoming more target-driven around children's learning as well.
- ➔ Enhanced performance management capabilities helped Educate Girls in actualizing the means to achieve these outcomes-based goals on an accelerated basis: by developing precise frameworks, processes and capabilities to measure and track outcomes achieved, identifying gaps as well as analysing and drawing learnings.

Public Private Partnerships

Public-private partnerships have been gaining its relevance for public infrastructure investment as an alternative to spending by the government. The International Monetary Fund IMF defines a PPP **as "*the transfer to the private sector of investment projects that traditionally have been executed or financed by the public sector".*** The United Kingdom and Australia are the top adopters for PPPS for public investment in infrastructure, accounting for 10percent and 5 percent. PPPs have been believed to bring about better choice of technology based better service delivery (especially in the case of deliverable based payment) and better chances of completion within the timeframe and budget. Different PPP models are practices and engaged in providing infrastructure and services based on different conditions on the private sector regarding level of investment, ownership control, risk sharing, tax treatment etc, given below are the most significant models.

- **Build Operate and Transfer (BOT)**: It is a simple and conventional PPP model where the private partner has to design, build, operate (during the contracted period) and transfer back the facility to the public sector. Here the role played by the private sector is to bring about capital for the project alongside the responsibilities of constructing and maintaining it. The public sector in return allows it to collect revenue from the users.

- **Build-Own-Operate (BOO):** This model differs from the BOT by the fact that ownership of the newly built is upon the private entity. Thus, the public sector partner agrees to purchase the goods and service produced upon mutually agreed terms and conditions.

- **Build-Own-Operate-Transfer (BOOT):** here, after the period of negotiation, the infrastructure asset is transferred to the government or to the private operator. Usually this approach is used for the development of ports and highways.

- **Build-Operate-Lease-Transfer (BOLT):** In this model, the private entity is given concession by the government to build a facility, own and lease the facility to the public sector and by the end of the lease period transfer the ownership to the government.

- **Lease-Develop-Operate (LDO):** The government or the public sector entity retains ownership of the newly created infrastructure facility and receives payments in terms of a lease agreement with the private promoter.

- **Management contract:** The private promoter has the duties for a full range of investment, operation, and maintenance functions. This also implies that the authority to make management decisions under a profit-sharing or fixed-fee arrangement is bestowed upon him.

- **Service contract:** In this model, the private promoter performs a particular operational or maintenance function for a fee over the specified time period.

Case Study of Land Value Capture Mechanism in Hong Kong

Land value capture mechanisms follow the basic logic that enhanced accessibility to attractive and efficient transport systems adds value to land and real estate.

Background

Hong Kong, China is very densely populated, with a land area of only 1,104 sq. km and a population of more than 7 million. Every day, over 11 million passenger journeys are made on the public transport system, which includes railways, trams, buses, minibuses, taxis, and ferries. More than 90 per cent of all motorized trips are by public transport, the highest market share in the world.

To achieve these impressive results, major investments had to be made in public transport systems. A key actor in the sector has been the Hong Kong Mass Transit Railway Corporation (MTRC), established in 1975 to provide metro services. Its entire system now stretches 218.2 km and has 84 stations and 68 light rail stops.

Business Model of Hong Kong Mass Transit Railway Corporation

MTRC operates without government subsidy and is highly profitable. This success is only possible because of the profits MTRC makes from its real estate business. Over the fifteen years (1998 to 2013), property related operations generated almost twice the amount of money spent on railway line construction (profit from property operations was more than HKD 88 billion, or approximately US$11 billion). Revenues are derived from profit sharing with private developers (mostly for residential projects) in real estate sale, and from renting and managing MTRC-owned properties (in particular for commercial and office operations). MTRC is now

one of the major players in the property market in Hong Kong, China, and its profit from transport operations accounts for barely 20 per cent of its total profit.

In addition to providing a stable and abundant source of income, developing property along the railway benefits MTRC by attracting residents to amenities and housing near the stations, which contributes to railway patronage.

When planning a new railway line, MTRC, in conjunction with the government, assesses the cost of construction and then prepares a master plan to identify property development sites along the railway. After obtaining all necessary approvals and having negotiated terms, MTRC purchases from the government the right for a period of 50 years to develop property above railway stations and depots, as well as on land adjacent to the railway (referred to as "development rights"). The "land premium" paid to the government for this right does not take into account the increased value resulting from the transport project (commonly referred to as the 'before rail' land premium).

MTRC then prepares a public tender for allocating these property development rights to private developers (development rights are usually divided into lots that are more manageable, in terms of cost, for developers). The private developers selected usually pay all development costs, including the land premium, for acquiring the exclusive development rights from MTRC. The private developers then have to bear the construction and commercialization risks and costs related to the residential and commercial properties.

Profit-sharing mechanisms are included in the agreements with the private developers. For the residential units, MTRC will receive an agreed portion of the profit generated by the sales if the private partner manages to sell all the units before the contractual deadline. Otherwise, MTRC will obtain the unsold units and then determine whether to sell or lease in the open market. For shops and office units, MTRC generates profits by leasing directly with developers or by keeping part of the assets developed to generate long-term rental income. While MTRC is not in charge of the construction of the properties, it nevertheless supervises the work, carries out civil works and enforces technical control standards and requirements for interfacing between its railway premises and the property development.

By using land value capture mechanisms, Hong Kong, China has enjoyed a world-class level of railway service with limited public financial input. The "rail+property" model satisfies the government's intention to spearhead the growth of local communities along the railway. On similar lines, Government of Andhra Pradesh could study such models to harness the private financing into infrastructure projects.

Credit Guarantee Scheme

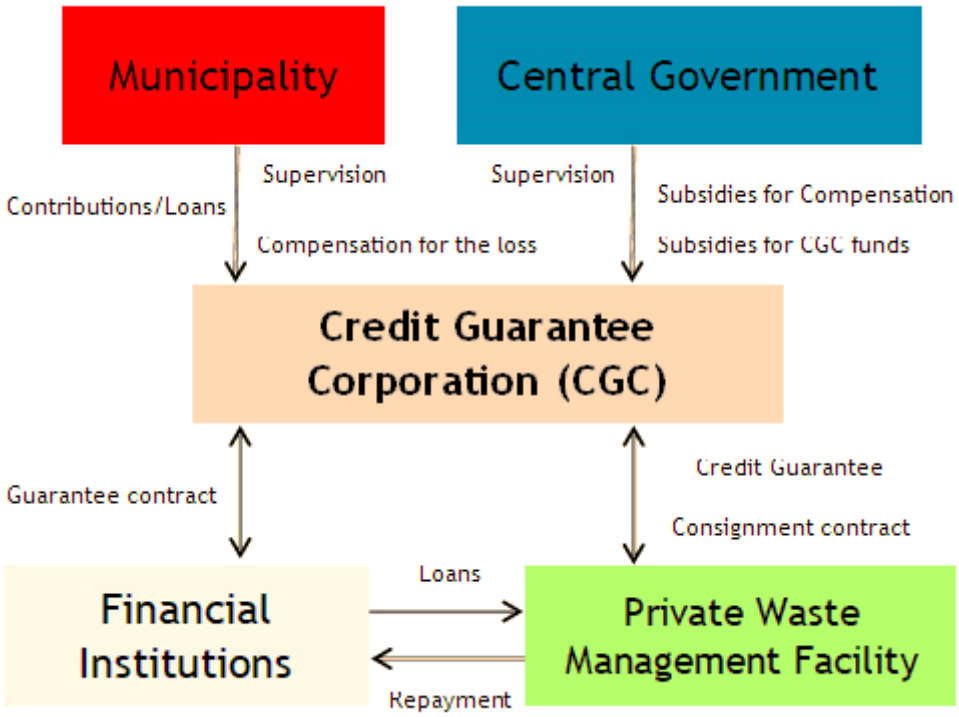


Figure 8: Credit Guarantee Scheme Model (Source: Naoyuki Yoshino and Farhad Taghizadeh-Hesary)

Credit guarantee schemes (CGSs) have been used in many countries and in various forms as a way of increasing the flow of funds to targeted sectors and segments of the economy, including small and medium-sized enterprises. A CGS makes lending more attractive by absorbing or sharing the risks associated with lending. A CGS can also increase the amount of funds lent to enterprises or projects beyond its own collateral limits because the guarantee is a form of collateral. It can assume the additional role of loan assessor and monitor and thereby improve the quality of lending. However, guarantee funds have a cost, which is borne by the fees charged and/or subsidized by the government or a third-party institution. **A CGS normally consists of three parties: a borrower, a lender, and a guarantor.** The borrower in the case shown in Figure 8 is a corporate or individual planning to establish an infrastructure project and seeking finance. The borrower typically approaches a bank or other financial institution for a loan. For reasons of information asymmetry, the loan request is frequently turned down. This is where the guarantor comes in. The guarantor is a credit guarantee corporation (CGC), usually run by a government or trade association that seeks to facilitate access to debt capital by providing lenders with the comfort of a guarantee for a substantial portion of the debt.

This scheme is applicable especially for providing the fixed capital for projects that require large investment amounts.

Hometown Investment Trust Funds

Renewable Energy projects in developing countries are mainly financed by loans from banks or equity capital and funded through public sources, international development assistance, private capital, and new kinds of finance such as carbon finance. Small-scale projects are a crucial part of fighting climate change and to achieve the SDGs in particular to "ensure access to affordable, reliable, sustainable and modern energy for all" specifically for rural populations.

Hometown Investment Trust (HIT) funds are a new source of financing to support solar and wind power projects in Japan. The basic objective of the funds is to connect local investors with projects in their own locality. Individual investors choose their preferred projects and invest small amounts. Local banks also have started to use the information provided by the HIT funds. If these projects are run properly and received well by individual investors, banks can start to grant loans to them. In this way, renewable projects can be supported by the HIT funds until they are able to borrow from banks.

HIT funds have expanded to Cambodia, Viet Nam, and Peru. They are also attracting attention from the government of Thailand as well as Malaysia's and Mongolia's central bank. Although HIT funds are a form of crowdfunding, there are significant differences to the conventional types of crowdfunds:

i) there is a "warm feeling" behind the HIT funds because investors sympathize with the company/project owners and they are not merely seeking to make profit.
ii) investors are willing to receive products or services generated by the project (e.g. electricity) instead of solely a share of profits.
iii) the intermediator/assessor of a HIT fund frequently monitors the project's functioning and provides advice when the project faces some difficulties.

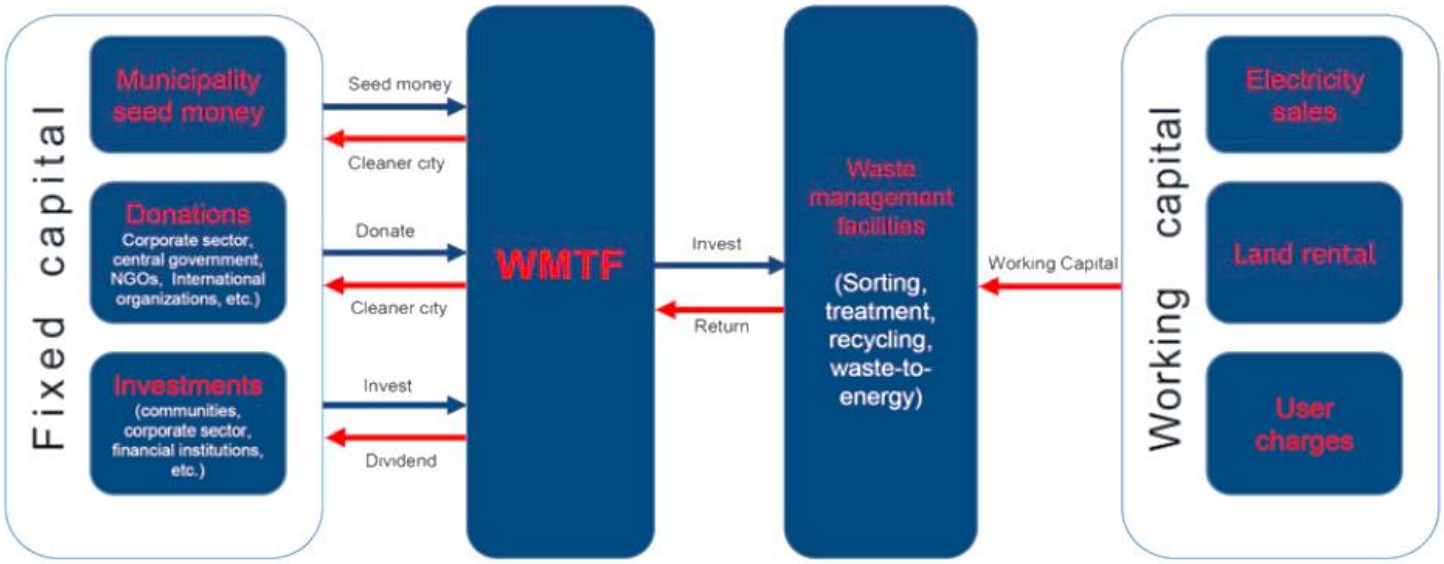
Furthermore, HIT funds distinguish themselves from other tools by creating a trustful, spatially close opportunity to invest small amounts to provide small-scale RE projects with initial liquidity. In this framework, trust is key and any technology that increases the transparency of the fund will improve its functioning. As internet sales are gradually expanding and the use of alternative financing vehicles, such as HIT funds, will help risky sectors in Asia to grow

Case Study on Hometown Investment Trust Fund

In addition to the fixed capital, the second major challenge facing waste management and many green projects (e.g., waste-to-energy projects) is the difficulty in funding their working capital. Therefore, it is important to design a scheme that can adapt to the socioeconomic environment to help the private sector fund the working capital of these projects.

In many large cities, landfills occupy large tracts of land, and the space is limited. By establishing sorting, recycling, composting, and waste-to-energy facilities, the freed landfills could work better to support other, more beneficial purposes for generating user charges, rent, and making revenue from the sale of electricity generated from waste for municipalities or private investors, which could be a sustainable source of funding for working capital.

Figure 9: Waste Management Trust Fund Model (Source: Handbook of Green Finance, ADB)



WMTFs can collect different forms of donations from the corporate sector, central governments, or international organizations; seed money from municipalities; and even investments from communities, the corporate sector, and financial institutions. The funds are project oriented and can be established for running waste management projects (sorting, treatment, recycling, waste-to energy, etc.). The investors receive dividends from the investment, and the donators and the municipality receive the benefits from the output of the waste management projects of a cleaner environment and hometown and social welfare. The working capital of the project can be funded by three sources: (i) rent of land (freed landfills); (ii) collection of user charges from waste generators (the facility is able to burn waste from other regions or other countries and receive the charges and fees—such schemes are operating in many European cities); and (iii) the sale of generated electricity.

Government of Andhra Pradesh can examine the models for investing in off grid solar solutions for the state. **The Credit Guarantee Scheme and Hometown Investment Trust Fund models can also be leveraged to attract funding from private sectors for urban development projects on Sanitation, Sewerage and Solid Waste Management and other Green Finance Initiatives.** The Hometown Trust Funds are also a good way to invest in SMEs.

Infrastructure Development: Impact on Sustainable Development Goals

Economic growth and investment in infrastructure go hand in hand. A growing economy needs constantly improved infrastructure to ensure that the production and exchange of goods and services happens as smoothly and efficiently as possible. Investment in infrastructure itself contributes to economic growth and can provide ample employment opportunities.

For example, Tashguzar–Boysun–Kumkurgon railway line in Uzbekistan increased the regional GDP growth rate in affected regions by around 2%, in the frame of connectivity effects. This seems to have been driven by an approximately 5% increase in industry value added and 7% increase in services value added.

Similarly, Southern Tagalog Arterial Road (STAR) Tollway located in the province of Batangas, the Philippines, increased the public finance of the cities and municipalities through which it directly passes. STAR Tollway significantly impacted increased not only business taxes, but also property taxes and regulatory fees.

Case Study Impact of Ports Improvement on Education in the Philippines

The Roll-on/Roll-off (Ro-Ro) policy was implemented in 2003 in order to strengthen the inter-island linkages and a more efficient Ro-Ro ferry terminal system (RRTS). The main goal behind this project were to

- Enhanced the local trade and tourism.
- Integrated national highway system comprising both road and water networks; to facilitate seamless transfer of people and goods from Mindanao to Luzon through the Visayas.
- Reduced transportation cost of sending products in the country
- Facilitate government programmes for agriculture, fisheries, and food security.
- Encouraging the private sector to participate in the RRTS and to promote its development.

This system aimed at expanding the country's transport by integration of the sea and road networks. It allows the trucks and other vehicles to board the Ro-Ro at the embarkation point and deboard at the destination point. This elimination of loading and unloading of cargo, helped this system to lower the shipping cost by about 30percent. Subsequently, it was also successful in integrating many ports into the road network, which lead to magnified connectivity. As per the Asian Development Bank report 2012, 'Philippines Transport Sector Assessment, Strategy and Road Map. Manila', this has helped in reducing the transportation time through faster embarkation and debarkation. For instance, it was reported that the travel time between the islands of Mindanao and Luzon was reduced by about 12 hours.

Impact of the Ro-Ro system on Agriculture and Education

To unveil and gauge the impact of the Ro-Ro policy in the Philippines, the Asian Development Bank conducted an empirical study on agricultural household income, children's education, and household consumption of food using different approaches for the three targeted beneficiaries. Some of the major results are as follows:

The Philippines faces the issues of low enrolment rate and completion rates in rural and remote areas. There was a significant increase in the school attendance for both girls and boys near the Ro-Ro ports. More pronounced and earlier enrolment for pre-primary level was observed for girls, especially considering the fact that, before 2012 school enrolment at preliminary level was not compulsory.

Similar trends were also observed for enrollment in secondary and tertiary levels. Multiple studies including (Obrta 2003) cites that girls' school attendance and educational attainment is high relative to the boys in Philippines as it is seen as a means to increase girls' labour participation in comparison to the boys for whom opportunities and access are better. School-age boys (6-20) drop school to serve the financial needs however this study brought out boys near the Ro-Ro ports were sent to school. In short, the benefits from the Ro-Ro port operations were transferred to children in the form of human capital and thus benefiting the local economies in the longer run.

The Ro-Ro port operations were able to stimulate farm and non-farm activities for the agricultural households. Subsequently, indications and evidence that Ro-Ro port operations encouraged agricultural activities on the nearby islands. Increasing number of non-agricultural activities also flourished where the Ro-Ro ports are located. With the increasing income near the port areas, the trend noticed was decreased alcohol and tobacco consumption.

To summarise Philippines with its archipelagic structure demonstrates the policy impact beyond reducing the transport costs. Linking of local economies and easy access has ripple effects over multiple sectors a few of which were mentioned above. Key takeaways include the fact that citizens near the infrastructure made the highest gains out of it, which indicates the importance of location of infrastructure development in policy design.

Multiple evidence-based studies bring about the fact investment in transport infrastructure leads to economic growth, reduced income inequality. **The Philippines port system (Ro-Ro)policy serves as a best practice for a strategic state like Andhra which is striving to revive its port infrastructure alongside the construction of new ones, paving way for better and connectivity, enhanced trade and bloom of the blue economy.**

Conclusion

Infrastructure funding and finance is in a period of flux. On both sides of the equation – supply and demand – there are positive and negative influences resulting from the governments' responses to it. How those influences will settle out over time remains to be seen, but it is clear that infrastructure needs remain pressing the world over and that governments will struggle to meet them, particularly on the heels of a global economic downturn that is having damaging fiscal impacts.

Given this dynamic, there should be an ongoing role for the private sector in the development of infrastructure and the public services delivered through it. The Global Financial Crisis, 2008 and pandemics may have temporarily changed the economics of public-private partnerships as financial transactions, but it has also highlighted the need for new approaches to solving the world's infrastructure problem.

Infrastructure is uniquely disadvantaged in the current climate. At this point only one thing is certain: the landscape for infrastructure funding and finance has been dramatically altered and could remain so for at least the near term.

Three trends are emerging. First, governments are attempting to use increased infrastructure spending as a tactic for economic stimulus. Second, tightened credit markets are posing an obstacle to raising debt finance for infrastructure delivery models – public or private – that depend on high levels of up-front capital repaid over the long term through user fees or general taxation. Thirdly, government balance sheets are constrained, making it more difficult to fund infrastructure projects.

Thus it becomes important to study the emerging contours of the new infrastructure funding/finance landscape, outlining conditions on both sides of the market: the 'demand' for infrastructure funding/finance and the 'supply' of funding/finance on the part of the public and private sectors and get into decision making for choosing the right options to attract investments for the economic growth of economy through infrastructure development.

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