



STRATEGIC PERSPECTIVES OF INTEGRATING LAND USE AND TRANSPORT DEVELOPMENT IN SRI LANKA: A REVIEW

Willie Mendis *

Emeritus Professor of Town Planning, University of Moratuwa, Sri Lanka

Correspondence should be addressed to w_mendis@yahoo.com

ABSTRACT

This article reviews the developments in the transport sector policy in Sri Lanka from the time of getting independence from Britain, highlighting the merits, gaps, prospects and opportunities noticeable in the present-day context. While the transport policy formulation happened in a compartmentalized manner focusing on sub-sectors of road, rail, water, and air, it did not seem to have an overall strategic perspective, especially to integrate the planning of human settlements and the sustainable use of limited land area and other resources of the island. Despite the availability of all-encompassing statutes and well-established institutions, large-scale projects in the road sector, the overall development has been ad-hoc and mostly demand-driven rather than as an integrated demand-managed approach. Such disintegration and dissociation with parallel spatial plans such as the Mahaweli Development Project, Greater Colombo Economic Development Commission projects, etc., has hindered both the development of the transport sector and the overall physical development of human settlements from contributing to rapid growth and sustainable socio-economic development of Sri Lanka. The article suggests a few opportunities and prospects currently available to formulate a cohesive and integrated transportation policy that would enable a strategic contribution to overall national development. The paper discusses the Colombo-Trincomalee Development Corridor, the spatial structure proposed in the National Physical Plan 2050, and the Asian Highway Network proposed by the Economic and Social Commission for Asia and the Pacific (ESCAP).

Keywords: Transport Policy, Spatial Planning, Human Settlements

1. OVERALL REVIEW OF THE TRANSPORT SECTOR

A strategy can be considered as a directed course of action to achieve one or more long-term overall goals under conditions of uncertainty [1]. Any research narrating the strategies of transport infrastructure development and the policies governing such development in Sri Lanka must be undertaken in the context of the country's socio-economic development.

The transport sector had its own share of strategic policy mixes in keeping with the institutional or governance structures assigned to it. The primary concern of these policies was to enable accessibility and mobility. Mobility was achieved through a series of legislative enactments. Thus, road, rail, air, and water had separate laws, regulations and rules with an emphasis on state control over the supply of transport services.

1.1. State pre-occupation in passenger transport supply

A strategic multi-modal transport policy is seen as a key missing factor in Sri Lanka's development policies. Thus, the connectivity of rail with road, water, and air travel from and to airports, was commuter-induced and not policy-driven. This may have been due to heavy dependence on Government budgetary allocations, rather than revenue generation; these modes of transport have been operating at a financial deficit throughout (refer to figure 1), without public-private investment in policy.

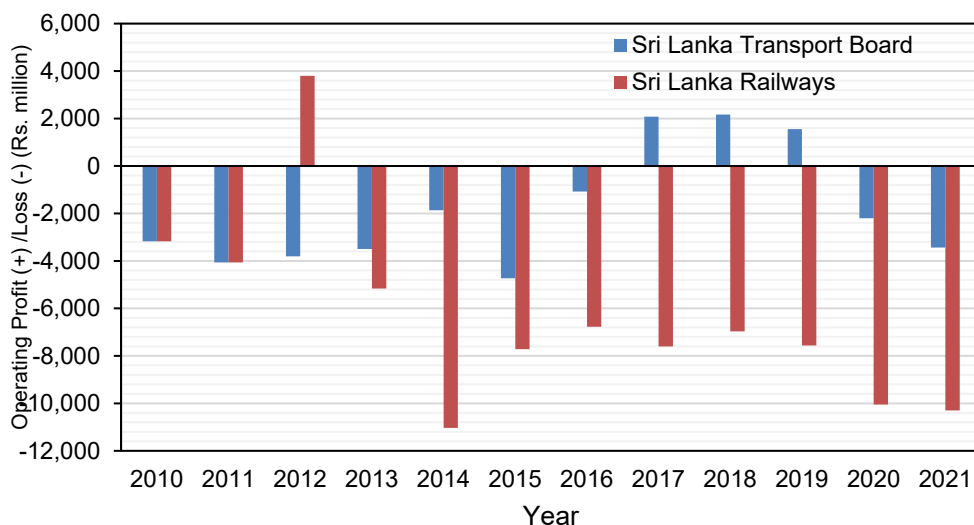


Figure 1: Operating surplus/deficit of the State-owned land transport service providers

Source: Constructed based on Annual Reports (2010 - 2021), Central Bank of Sri Lanka

1.2. Neglecting rail and freight transport

Rail transport policies aimed to ensure mobility in the carriage of passengers and the inclusion of postal mail. They focused on constructing rail tracks between key demand centers; with long-distance rail services plying between provincial capitals, and shorter distance services plying between urban and sub-urban areas, as evident in the Colombo City Region.

The locomotives, tracks, compartments, and other components necessary for rail transport were also granted space in each of the key provinces, with a central facility in Maradana, Colombo. However, the land assigned to these facilities was underused or undeveloped. This land was then reallocated to alternative use by the Government, with a view to preventing illegal encroachment by individuals or commercial entities.

In a strategic sense, overall, rail transport has been the weakest in a policy perspective. One such policy lapse was that the Sri Lanka Railways adopted a passenger orientation after 1958, neglecting new initiatives to seek goods transport markets which were almost fully left to road transport.

Table 1: Operations of the Sri Lanka Railway 2020-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operated Kilometres (million)	9.79	10.04	10.37	10.92	11.08	11.80	11.92	11.68	11.64	11.23	7.99
Passenger Kilometres (billion)	4.35	4.53	5.04	6.26	6.84	7.41	7.41	7.50	7.71	7.31	3.91
Freight Ton Kilometres (million)	163	176	142	133	130	130	140	145	120	116	114

Source: Constructed based on Annual Reports (2010 - 2021), Central Bank of Sri Lanka

Meanwhile, domestic air transport was limited. Its governance was exclusively vested with the national security establishment through the Sri Lanka Air Force. The key reason for this was the 30-year civil conflict in the North of the country. The airports at Katunayake, Ratmalana and Mattala have been partially opened after the end of the conflict. Ratmalana Airport has been designated for international transport, but not developed for the purpose. Further, inland transportation via private and public helicopter was possible not only from the aforementioned airports, but also from others with aircraft landing facilities established by the Sri Lanka Air Force. Nonetheless, as shown in Table 2, this has made no strategic headway in the country's overall transport sector in the performance of the Bandaranaike International Airport

at Katunayake (BIA), the Mattala Rajapakse International Airport (MRIA) and Jaffna International Airport (JIA).

Table 2: Performance of the three international airports (2012-2020)

Airport	2012	2013	2014	2015	2016	2017	2018	2019	2020
BIA	55,288	57,823	884	916	64,903	74,512	71,973	24,931	24,336
MRIA	2,984	2,329	2,739	4,772	978	915	786	505	722
JIA	-	-	-	-	-	-	64	140	32

Source: Constructed based on Annual Reports (2010 - 2021), Central Bank of Sri Lanka

Key seaports in Colombo, Galle, Hambantota, Trincomalee, Kankesanthurai and Mannar were dominantly governed by Sri Lanka Ports Authority and overseen by the national security complex (Table 3). These ports do not have water transport by inland water routes. Such routes were part of a strategic national transport network in the 18th and 19th centuries particularly in the Hendala-Wattala and Kotte-waterways. However, their growth potential has not been realized in relation to commuters or goods.

Table 3: Performance of seaports in Sri Lanka (2010-2021)

Performance of Port Services	2010	2012	2014	2016	2018	2019	2020	2021
Vessels Arrived	4,067	4,134	4,264	4,998	4,874	4,697	4,337	4,180
Colombo	3,910	3,870	3,742	4,405	4,331	4,198	3,806	3,675
Galle	48	69	60	96	84	43	22	14
Trincomalee	109	161	127	216	189	142	135	117
Hambantota								
Total Cargo Handled (Mt '000)	61,240	64,970	74,410	86,519	104,934	106,979	102,908	109,369
Colombo	58,768	61,669	70,794	81,879	100,151	101,926	97,681	103,824
Galle	318	422	394	771	729	510	404	106
Trincomalee	2,154	2,859	2,748	3,514	3,560	3,304	3,072	3,190
Hambantota		20	474	355	494	1,239	1,750	2,249
Total Container Traffic (TEUs '000)	4,137	4,187	4,908	5,735	7,047	7,228	6,855	7,249
Transshipment Containers Handled (TEUs '000)	3,205	3,167	3,781	4,435	5,704	5,704	5,765	6,050

Source: Constructed based on Annual Reports (2010 - 2021), Central Bank of Sri Lanka

In this backdrop, road transport has remained at the helm of Transport Policy in Sri Lanka (Figure 5). The road and rail network built by the British colonial Government was an asset inherited during Sri Lanka's Independence in 1948. It was entrusted at

first to the Highways Department; at the time the key focus of policy was to classify the road network and to improve on it by widening some from a single-lane route to two-lanes (providing transport in both directions), with subsequent change as four-lane routes, and the addition of new roads to meet the increased demands of the spatial distribution of population.

The Highways Department classifies its network as A, B, C, and D-class roads. The A-class roads were designated as Trunk Roads linking provincial capitals identified by a numeric added to each in its route to Colombo. B-Class roads connected provincial settlements to their capitals. Other classes of roads were largely rural networks with limited connectivity to different settlements in each Province. The policy was to have sealed top (tar) on A and B roads, and an earthen finish for others.

Under a decentralized mode of road transport policy, A and B Class roads became the responsibility of the central Highways Department and the other classes of roads were tasked to the local authorities which also had the statutory powers to authorize construction: including to increase road width and provide for vehicle parking. Over time, this task was shifted to a centralized Road Development Authority responsible for national level roads and decentralized Road Development Authorities responsible for road transport at the provincial level. With population increase in settlements, road transport increasingly became pivotal to the economy.

The economy-road transport relationship originated more strongly in the 1980's with a policy for the introduction of Expressway-class roads. The first was built linking Colombo with the South of the country, designated as the Southern Expressway, with tolls charged from travellers. This new class of roads link Colombo with the Katunayake International Airport, Kurunegala, Kandy and possibly the East Coast. Accordingly, the spatial envelope of the country is gradually embracing the transport sector with that of the human settlements but heavily dominated by the road infrastructure, as shown in Figure 2.

Even though a significant improvement with large-scale developments could be noted in the road sector in the recent past, the overall development of the transport sector in Sri Lanka has been ad-hoc and has evolved more in a demand-driven scenario than an integrated demand management scenario. What is also evident in a policy review is that Transport Policy in Sri Lanka to date has been compartmentalised according to type (that is, road, rail, water, and air) with no overall strategic perspective. Its developments have yet to consider the necessary spatial planning and sustainable use of the limited land area and the other resources of the island. It has divorced itself in an overall sense of the country's development that comprised of its own economic, social, and environmental issues arising from the expansion and evolution of human settlements.

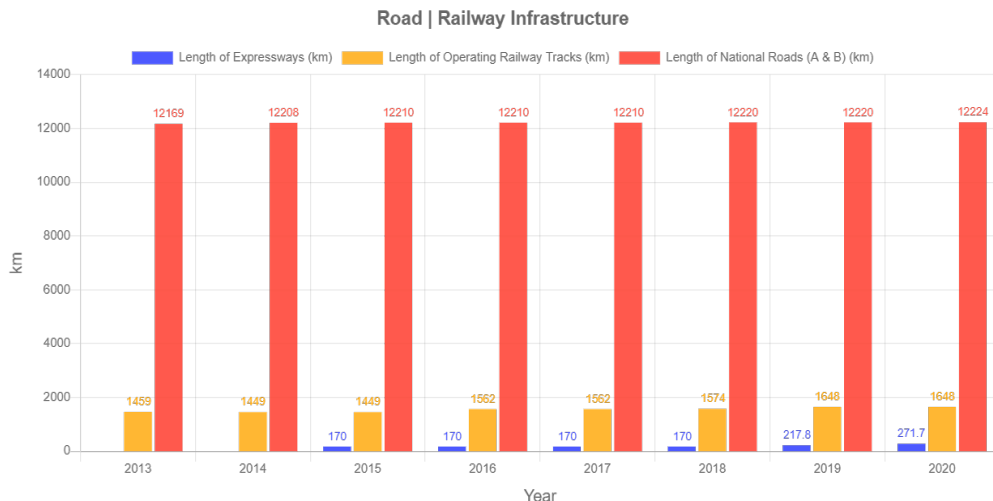


Figure 2: Extent of land transport infrastructure in Sri Lanka (2013-2020)

Source: Annual Reports (2013 – 2020), Central Bank of Sri Lanka

In particular, strategic developments beyond the transport sector have not been linked to transport policy: notable exceptions to this rule are the Accelerated Mahaweli Project, free trade zones, designated international airports, and seaports, all of which have been considered along with the transport policy. More recent developments, such as Colombo Port City and Tourism Zones, which could have been included as strategic initiatives, were not specifically aligned with transport policy. The result is an increased dependency on private transportation (figure 3).

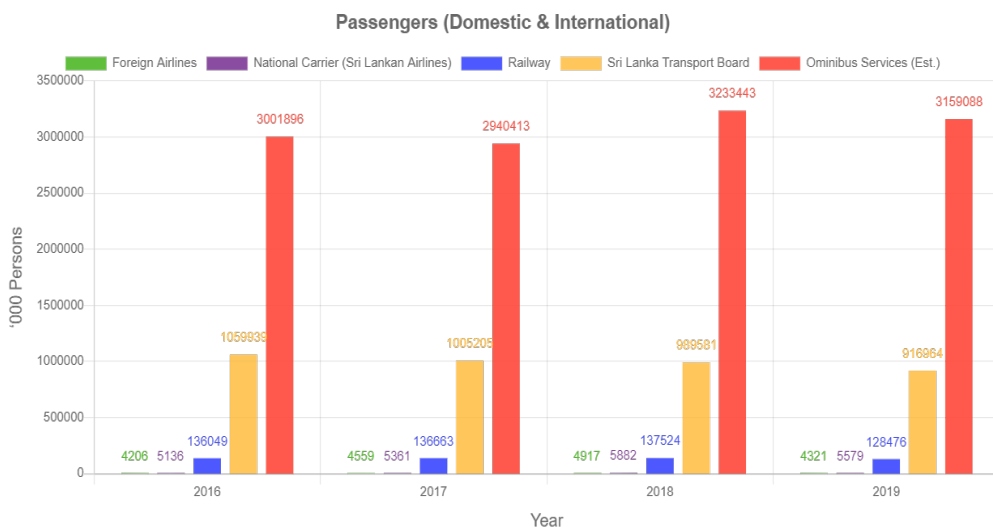


Figure 3: Number of passengers using different modes of transport (2016-2019)

Source: Statistical Pocket Book 2020

The relevance of an integrated transport policy with stand-alone strategic ventures arises from both transport and human settlement being fundamentally land-based. However, the absence of a coherent National Spatial Strategy integrating the spatial patterns of land uses, and transport policy has been a long-standing constraint in steering development within the country.

2. IMPORTANCE OF SPATIAL STRATEGIES LINKING TRANSPORT CONNECTIVITY

The most dominant or significant occupier of any land is its people or population in the form of human settlements. Consequently, changes in land use arise as a result of activities generated by settlements in whatever form or size. Transport is one such human activity which requires land use. However, land use faces competing interests from other human activities within the same spatial bounds. The allotment of the limited land extent of 65,610 sq. km. in Sri Lanka across these competing interests is a huge challenge.

This challenge is intrinsic to the art and science of land use planning. 'Physical Planning' in the process of developing a statutorily designated planning area in the context of an urban landmass or in an urban local authority for governance is known as Urban Planning. The conceptualisation of land use within the spatial bounds of a settlement requires a general plan. This allows planners to achieve long-term goals that cater to changing conditions.

In such a strategic plan, transport constitutes a permanent commitment of land, whether for new road developments or for the revision of already designated routes. Certain features of these developments will determine whether they can yield optimum returns: these include the length and width of the route, its standard of design to assure its sustainable use, the permitted vehicle speed and noise, and the allotment of land for pedestrian traffic. These features also need to consider sites or places providing the logistics connected to the transport routes: these include service stations, park and ride stops, and toll gates. These define collective compacts, which may vary from one to another due to the context. On the other hand, the multi-modal factor cannot be excluded from the characteristic of the origin-destination traversed in a transport route.

Optimum return from transport measures the overall development envisaged in a strategic integrated transport-related land use plan. This is ascertained in relation to the extent of allotted land and inputs to GDP (regional or national). It also relate to two other extraneous factors, one of them being whether the planning area has prospects for economic growth based on its location, the extents of lands available,

and its share of the active population. Another consideration is the diversity of transport modes. In some settlements, traffic-related issues such as congestion increases because of the /spatial imbalance. This is due to policy incentives for a surge in human activity with no countervailing policy to provide users with an efficient public transport system, as opposed to a heavily polarised individualised private transport system. In Sri Lanka, this has led to the drain on the country's foreign exchange reserves due to the import of fuel and sovereign debt default.

3. REVIEW OF STRATEGIC TRANSPORT- LAND USE PLANS

The preceding paragraphs have discussed the background and setting for the development of a strategic plan for integrating land use and transport. A key argument was that transport helps leverage economic and social dimensions of land-based spatial development - nationally, regionally and sub-nationally. In such a context, the economic prospects of the area were envisaged to grow with the introduction of policies for strategic integration of transport with land use.

Currently, three-fourths of the national population resides in the overpopulated southwestern quadrant of the island. In this area, settlements are congested, transport contributes to environmental pollution and discomfort in travel itself (particularly given the large number of vehicles used to overcome the lack of efficient mass transport options).

The Colombo Port and airports in the Southwestern spatial quadrant, supplemented by the growing industrial sector, have led to a dysfunctional economy in Colombo City and its surrounding metropolitan region. This led policymakers to focus on decentralising institutional and governance structures along with major industrial activities. The overall outcome of the effort has not been successful.

3.1. Colombo-Trincomalee Development Corridor

The Accelerated Mahaweli Project (AMP), located outside the South-Western quadrant, proposed a countervailing spatial strategy for a land mass constituting 39% of the country's total land extent. It hosted a considerable number of new townships in the vicinity of Trincomalee Port (one of the world's largest deep-water harbours), and the spatial distribution of the country's natural and man-made resources, creates a base for further investigation. The latter was reflected in a 50-mile (80-km) wide spatial corridor formed by a line linking Chilaw with Kuchchiweli in its northern frontier and the similar linking of Bentota with Katankudy in its southern frontier [2]. Broad analysis indicated that nearly 70% of the country's wealth from natural and man-made resources was concentrated there (Figure 4). In addition, the human

settlements characterised as urban agglomerations in the South-West, South, East, and North of the country comprise another prospect for transport sector development. The synergy between them, the AMP, and the 80 km wide corridor had the opportunity for optimum returns for overall integrated land use and transport development.

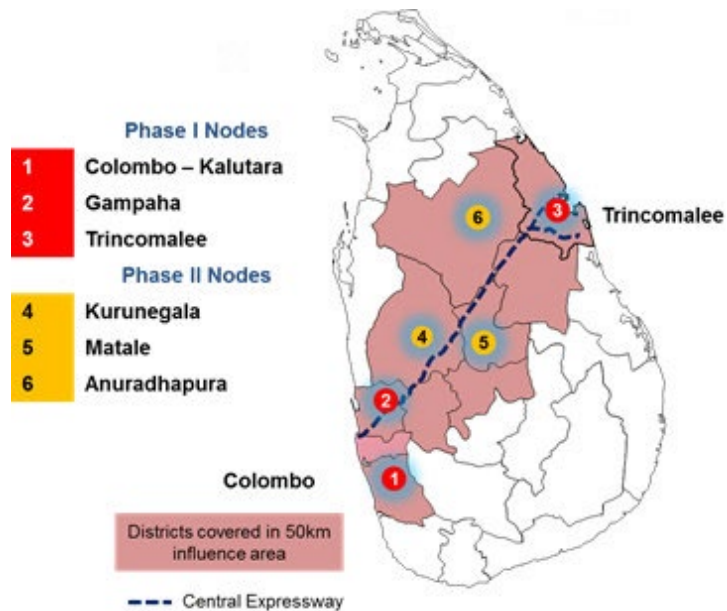


Figure 4: Colombo - Trincomalee Development Corridor

Source: ADB: Sri Lanka Country Sector Assessment Draft Report

This corridor provides the potential for a strategic balance in national development by linking the Colombo – Centered contiguous urban agglomeration with a counter magnet in a Trincomalee-Centred urban agglomeration. The two seaports were expected to catalyse strategic growth nationwide from a rapid transit road/rail transport between Colombo and Trincomalee, straddling the nation’s human and material wealth.

The analysis of the issues involved in such an exercise in multidisciplinary, but this approach was always overlooked in favour of a particular discipline during the stage of the feasibility study of mega-projects [3]. The latter was a classic omission in the massive multi-purpose Accelerated Mahaweli Development Project, which focused itself on dams, reservoirs, and power stations, thereby marginalising the source of development, that is, the human settlements and their networks. At the same, the nation thereby missed the vast opportunities that could have accrued from incorporating the Colombo-Trincomalee Development Corridor as an integral part of the Accelerated Mahaweli Project.

The Colombo-Trincomalee Development Corridor, entwined with the prospects of the Accelerated Mahaweli Development Scheme, which had the potential to trigger the growth of the national economy, never become a policy instrument as it was not considered as a multi-disciplinary development strategy. Moreover, its connectivity to markets was ignored even though the potential transport demand for this corridor was analysed [4] and found to be adequate to warrant urgent infrastructure development.

3.2. National Spatial Strategy

A noteworthy complement to the above Colombo – Trincomalee Transport system was its networking with the other two wealth and growth – settlements in the Jaffna-centered and Galle – Hambantota-centered urban agglomerations. The spatial structure that included the above constitutes the platform for the National Spatial Strategy [5] compiled in 2002, as demonstrated in Figure 5. This has now been reformulated in the National Physical Plan 2030.

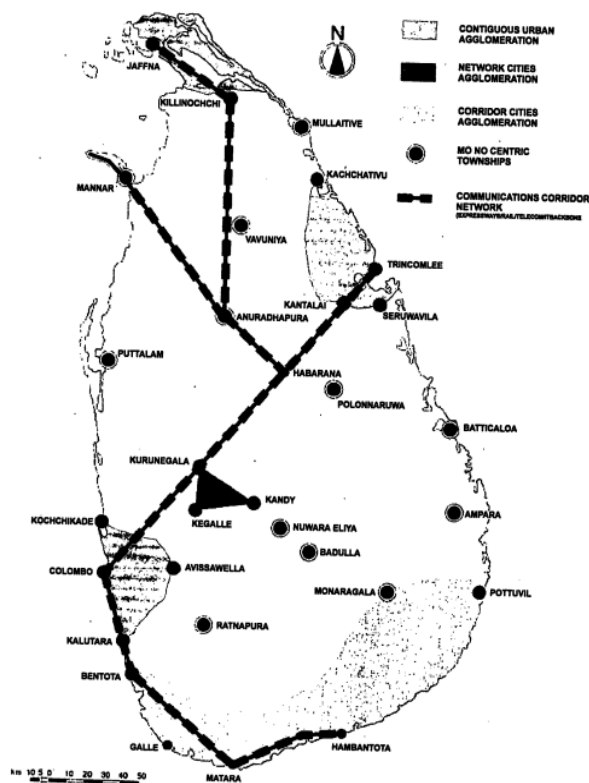


Figure 5: Spatial Configuration Sri Lanka year 2020 as per National Spatial Strategy of 2002

3.3. Southern Development Corridor

The scenario proposed therein for a concentration of a large segment of urban settlements and a higher share of the future populations into Colombo-Trincomalee Development Corridor, with another segment into the Southern Development Corridor, was a good move to integrate and optimise the use of already developing expressways and proposed railway infrastructure, linking them with the readily available seaports and the airports. It also enables the multi-modality of the local transport provisions in the existing and emerging urban settlements within those corridors. Such an integrated and coherent perspective in the formulation of a transport policy was not an option but a necessity for Sri Lanka to properly encounter both the opportunities and the challenges emerging from both local and global contexts.

3.4. Indo-Lanka Development Corridor

However, the rationale for strategic integration of a land use and transport plan for Sri Lanka could not only rely on the confines of its spatial boundary, as the global environment had advanced and changed vastly to influence national-level affairs. In a broader sense, it needed to seek its role in the Asian Highway Network (Figure 6) proposed by UN-ESCAP in early 2000 [4]. In this connection, it is significant that Sri Lanka was a signatory in its Inter-Governmental Agreement ratified on 24 September 2004.



Figure 6: UN-ESCAP Asian Highway Network (India-Sri Lanka)

Source: UN-ESCAP Report, 1997

It overshadows anything else in the opportunity to secure its transport to be intertwined with the changing new world order. More specifically, with the prospects for connectivity with India's superior railway, highway and logistics network, initially with the prime destinations in its four Southern States (Figure 7).

As detailed in [5], the deliberations of international trade, making Colombo a Financial Hub and the Port of Colombo a regional hub prompted to seeking of transborder opportunities with the Southern States of India, having significant shares of urban population (Table 4). The aim of the Indo-Lanka Development Corridor was to create conditions conducive to economic growth in both nations. The conceptual framework for its enablement was the formulation of a preferred Spatial Development Strategy in the transborder corridor. The repetition of such omissions in the Indo-Lanka Project by focusing dominantly on the "bridge", as opposed to its multi-disciplinary and integrated land-use and transport potential, was another mistake of catastrophic proportions [5].

Table 4: Population and Share of Urban Population in the Southern States of India (2001)

State	Population (million)	Urban Population (million)	% Urban Population
Kerala	31.84	8.27	25.97
Tamil Nadu	62.11	27.24	43.86
Karnataka	52.73	17.92	33.98
Andhra Pradesh	75.73	20.50	27.08

Source: Census of India, 2001

As shown in Figure 7, on the Sri Lanka side of the transborder link, the key city-regions was to comprise the Colombo Metropolitan Region and the Trincomalee Metropolitan Region: These were connected to the other key urban nodes of the Southern Region, Triple-K Region, and the Jaffna region by the Colombo-Hambantota and Colombo-Trincomalee Expressways, with rapid transit access to Jaffna linking the route connecting the Rameshwaram-Mannar bridge to Trincomalee [5].

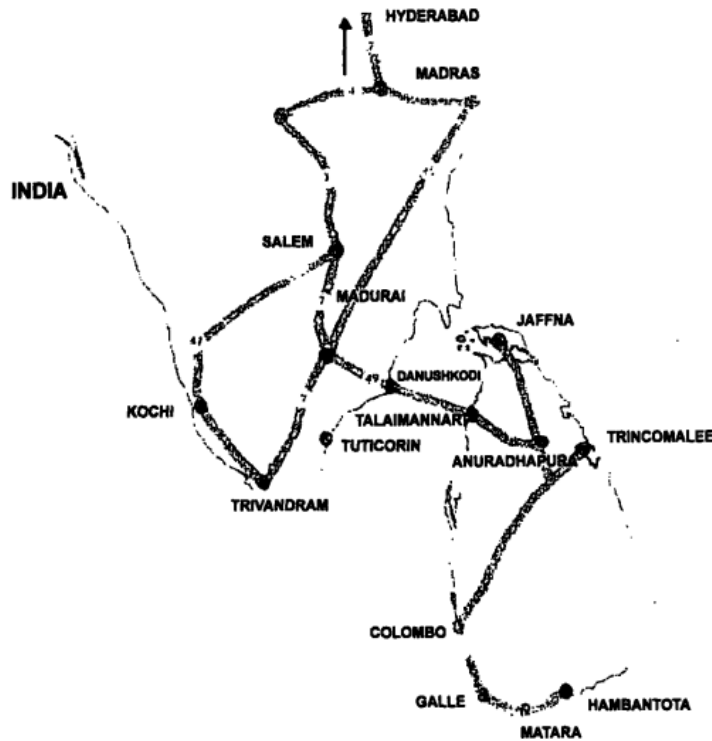


Figure 7: Proposed Indo-Sri Lanka “Smart Partnership” Project, 2002

3.5. National Physical Plan 2050

In these circumstances, the statutorily compulsory engagement with the National Physical Plan (NPP) (Figure 8) becomes critical in fashioning Transport policy. The NPP was not a rigid one-time Plan. The condition of uncertainty was accommodated with regularity in its periodic revision. It offered a prime analytical instrument to achieve the short, medium and long-term overall goals in the spatial extent of Sri Lanka, addressing the social, economic, physical and environmental issues [2]. It included the prospective growth areas with proximity to achieve development goals. The settlements in them were aimed to attract production sectors to use the land therein to expeditiously connect with the markets, locally and globally. It would create plausible conditions in one or more selected locations for rapid transport (inclusive of road and rail) between the originating production centres and their destinations to the consumers. However, all these were needed to happen to manage the limited land extent available nationally and facilitate the achievement of the strategic goals for its overall development.

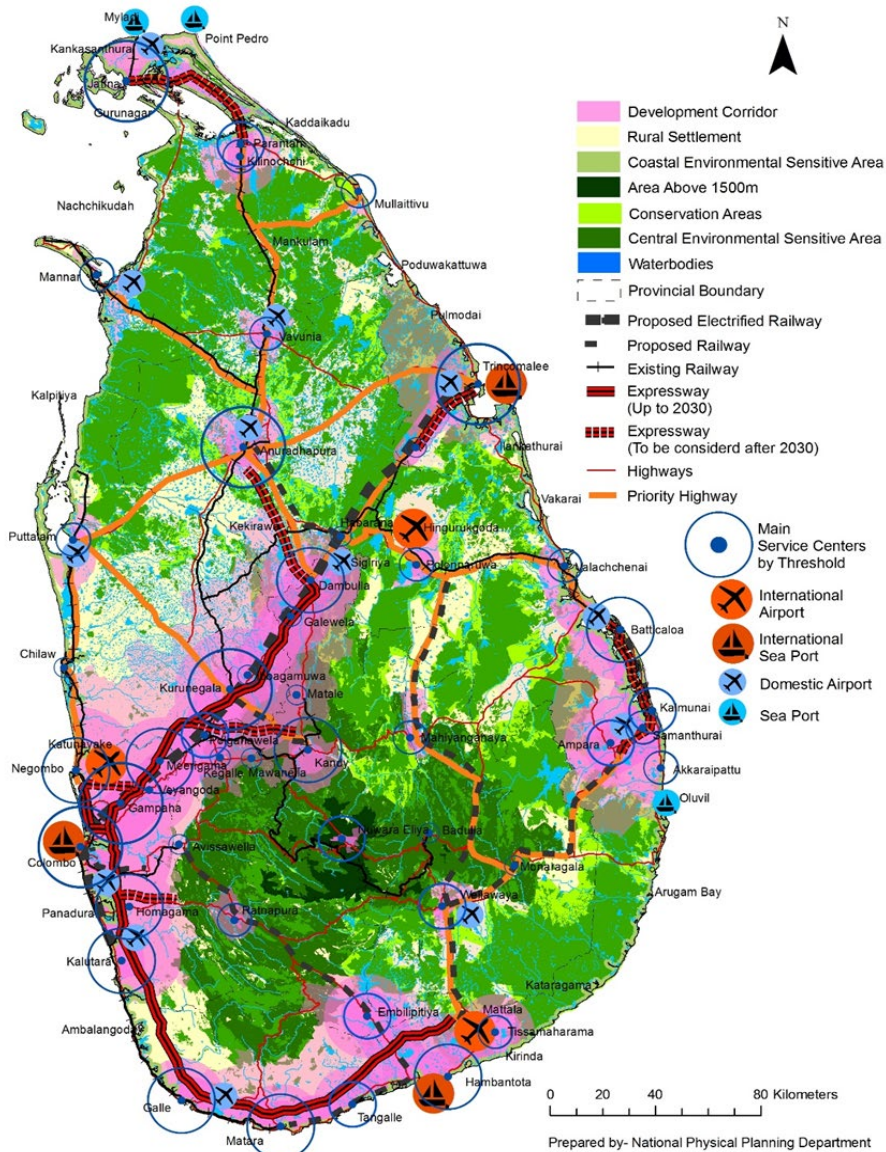


Figure 8: National Physical Plan: Proposed Spatial Structure 2050

The Spatial Structure of settlements, a network of towns and the economic activities proposed by the National Physical Plan 2050 provide a timely opportunity for the transport sector to work both in its own cohesion of different modal divisions, i.e., rail, road, water and air transport, and hand-in-hand with the spatial planning to physically directing future human settlements into areas that provide the future populations in Sri Lanka with environments conducive for living, generation of economic activities and exploiting its own, yet untapped resources.

4. CONCLUSIONS

This article traces the development of the transport sector in Sri Lanka, which has mostly been based on established mobility patterns and without considering land-used development plans. The early call to develop a Colombo-Trincomalee Development integrating the Accelerated Mahaweli Development program was ignored, resulting in a missed opportunity to develop a national spatial strategy that would have developed a second corridor to the south and the Indo-Lanka Development Corridor that would have connected the four southern states of India. The recently formulated National Physical Plan, 2050, provides an opportunity to correct these omissions if the current trend of planning transport in isolation of an integrated land use strategy can be reversed.

REFERENCES

- [1] Mintzberg, Henry and Quinn, James Brian (1996). *The Strategy Process: Concepts, Contexts, Cases*. Prentice Hall.
- [2] The National Physical Planning Policy and the Plan 2050,
https://www.nppd.gov.lk/images/National_Physical_Plans/National_Physical%20Planning%20Policy%20and%20The%20Plan%202050.pdf
- [3] Mendis, M.W.J.G., (1973), The Planning implications of the Mahaweli Development Project in Sri Lanka, Lake House Investments Ltd. (Publishers), pp. 105 &106.
- [4] Kumarage, A.S. (1990), Intercity Passenger Demand Modelling for Developing Countries, PhD Thesis, University of Calgary.
- [5] Mendis, M.W.J.G., (2002), Indo-Lanka Development Corridor: Conceptual Issues, Built Environment: Sri Lanka Volume 3, Issue 1, pp 25-30.
- [6] Asian Development Bank [ADB] Support for Development of the Colombo-Trincomalee Economic Corridor in Sri Lanka,
<https://www.ksp.go.kr/english/pageView/publication-eng/710?kspCd=004>,
- [7] Intergovernmental Agreement on the Asian Highway Network (2000), Economic and Social Commission for Asia and the Pacific,
https://www.unescap.org/sites/default/d8files/AH%20Agreement%20with%20Amended%20Annex%20I-%202020_EN.pdf