

# Sustainability as a Criterion in the Reconstruction of Libya's Public Transport Infrastructure

Haitam Emhemad, Brian Agnew, David Greenwood

**Abstract**—Amongst the many priorities facing Libya following the 2011 uprising is the provision of a transport infrastructure that will meet the nation's needs and not undermine its prospects for economic prosperity as with many developing economies non-technical issues such as management, planning and financing are the major barriers to the efficient and effective provision of transport infrastructure. This is particularly true in the case of the effective incorporation of sustainability criteria, and the research upon which this paper is based involves the examination of alternative ways of approaching this problem. It is probably fair to say that criteria that relate to sustainability have not, historically, featured strongly in Libya's approach to the development of its transport infrastructure. However, the current reappraisal of how best to redevelop the country's transport infrastructure that has been afforded by recent events may offer the opportunity to alter this. The research examines recent case studies from a number of countries to explore ways in which sustainability has been included as a criterion for planning and procurement decisions. There will also be an in-depth investigation into the Libyan planning and legislative context to examine the feasibility of the introduction of such sustainability criteria into the process of planning and procurement of Libya's transport infrastructure.

**Keywords**—Libya Reconstruction, Sustainability criteria, Transport Infrastructure.

## I. INTRODUCTION

THE political up-rising of 2011 damaged the infrastructure of Libya and transport sector was affected significantly. The aim of this review focuses on post political up-rising and especially the priorities set by the interim and current government about infrastructure and particularly transport sector in Libya.

The big cities are facing problems of traffic jams, threats to the environments and accidental deaths are increasing due to weak transport infrastructures [2]. The issues faced by the transport infrastructures should be dealt with responsibility [3]. There are various aspects in the transport sector. The indicators under each aspect must be considered equally to have sustainability [4].

Transport sector in general face problems from capital funding. The developed countries took the advantage private companies under a strong legislation but the developing countries due to lack of good governance are facing problems.

The capital funding for the transport sector is not enough to meet the needs of the people [5].

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The transport infrastructure should provide opportunities for economic activities, failing to this can undermine such activities. The people can lose jobs which is exactly a negative side of weak economic activities. The planners must consider the ecology while designing the transport infrastructures [6].

The importance of transport sector is of great importance as people use transport for many purposes. People go to work for their jobs, market etc. therefore a sustainable transport sector plays central role in the economy

## II. RESEARCH QUESTION

Currently, freeway investment has not kept up with population and employment growth; the transport facilities are not meeting the public demand. The congestion in especially big cities Tripoli, Benghazi and Sabha is causing accidents.

There is no public or private institute which can bridge the gaps in the transport infrastructure. Congestion is threatening on one side the environment and on the other side wastage of time of the service users. Previous and present government policies do not encourage the private investment in the transport sector [7]. Due to unavoidable circumstances during the uprising of 2011, the level of damage to the transport infrastructure did add more problems to the infrastructure.

## III. OBJECTIVE

- To investigate the present situation and how far this can bring changes in the transport infrastructure (sustainability) basing upon the annual reports of the Ministry of Transport, Libya, 2011-2013.
- To discuss sustainability in the transport infrastructure under the Ministry of Transport, in Libya, after 2011 to date.
- To highlight the barriers faced by the transport infrastructure and how it has contributed unsustainable transport infrastructure of Libya, 2011-2014.

## IV. LITERATURE OF REVIEW

Un-sustainability in transport sector can disrupt various activities e.g.; transport users might face long waiting hours; people might become the victims of long queues, and may also face accidents etc. [2] while considering those challenges suggested to place a Multi-view Black-box (MVBB) framework.

The framework can address sustainable development indicators (SDIs). Basing upon the conditions prevailing in the city of Mumbai, India, MVBB offers solution facing by the transport sector especially in the city of Mumbai, and this

framework is equally applicable to any similar domain. Their research initially reviewed some of the literature and then suggested three ways in which collaboration can bring sustainability in transport sector. These include; economic efficiency, social wellbeing and ecological acceptability for urban sustainability.

The following model directly underpins the issue faced by any transport sector. According to [8] human activities in any situation change the environments. These activities alleviate pressure upon the resources such as financial and human. This brings the policies and actions for any government under further pressures. Therefore consideration of such models gave way to the implementers to find solutions in the transport sector.

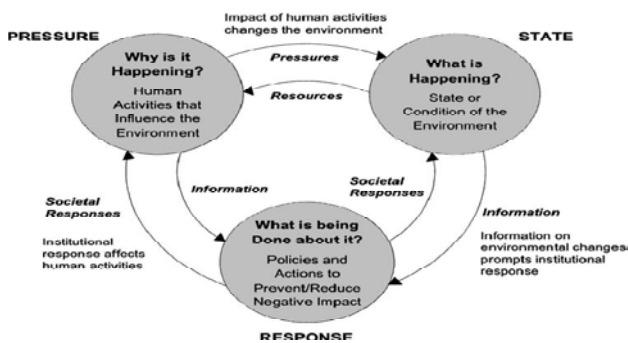


Fig. 1 Pressure-state-response model-adapted from OECD 1999b

As stated in [3], the authors also focused on infrastructural sustainability and reviewed about 16 world infrastructures along with sustainability initiatives. The inferences indicate there is no standard definition of transportation sustainability. Their review also suggests that three aspects such as economy, environment and social wellbeing must be considered in addressing issues of non-sustainability. [4] Also supported the three aspects for introducing sustainability in the transport sector, but pointed out that under each category, there should be indicators separately. The Canadian Centre for Sustainable transport (CST) took the advantage of framework suggested [4] and applied the model with a balance for all the categories. It can be further seen in Fig. 2 that recommends the importance of unified framework. The inputs can introduce some factor that might affect sustainability. Therefore knowledge and skills of implementers can avert such threats. Whereas high impact of inputs if controlled within time scale will likely be suitable in the sector in order to give way for successful results. However, those who operate with a clear mandate can achieve the goals if responsibility is fixed.

As reported by [14] emphasised that infrastructures do face issues related to capital. The authors indicated that identification of issues and then their convertibility as solutions within the resources is the recognised issue. In addition, other types of wealth and its evaluation along with ecological resources are the second issue that poses threats to the infrastructures.

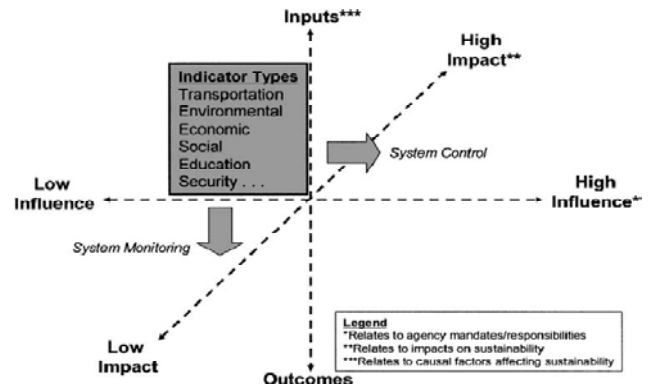


Fig. 2 Unified frameworks for developing indicator systems for infrastructure system sustainability

In consonance [9] presented three concepts of sustainable development they include; firstly in terms of economics, the sustainable plan should focus for having higher per capita income but for future generations. In reference to sociology, the sustainability development must focus on social relationships in the communities. Where the third aspect is about ecology, any sustainable development plan should regard for biological species, including essential ecosystems as well as ecological processes. The study in [10] recognised that Libya should develop first of all the capacity to diversify its economy. In addition, the planners should develop plans as sustainable. This is possible through transfer of knowledge and skills.

## V. METHODOLOGY

There are two leading research approaches used in collecting data from the companies, government and non-government departments. Sometimes two methods are used together but depend upon the resources and time. The various researchers have acknowledged the application of both the methods such as quantitative and qualitative, in consonances with [11]–[12] postulated that qualitative approach addresses the policy issues in depth. However, it does not mean that quantitative approach is not responsive. The authors in [13], acknowledged the qualitative approach to get detailed information for the issues under investigation.

During this research, information was obtained from the Ministry of Transport annual reports basing upon three years from 2011 to date. The reports are critically analysed and information is presented in the results section.

## VI. RESULTS AND DISCUSSION

The following three questions were addressed from the annual reports from 2011 to date. The questions were as:

- The total infrastructural damages that occurred in the transport sector during 2011 political uprising,
- The reconstruction activities undertaken by the interim and elected governments to bring or making improvements in the transport infrastructure,
- The steps taken by the government to demonstrate sustainability in the transport infrastructure of Libya.

While looking at the first question, the annual reports suggest that there were enormous damages occurred to the transport infrastructure in Libya during 2011 uprising. The rebels took firm control of the entire transport infrastructure. This is believed to have happened due to the absence of private sector in the transport industry. All the transport companies bigger or smaller belong to either the previous government or her cronies and this made them incapable of saving the assets of the transport. The rebels took the advantage in seizing the control of entire transport system and made the government to look inefficient in addressing the issue. They also captured the refined petrol supply at the various petrol stations. This is also part of transport infrastructure. In addition, all the roads are part of transport infrastructure. The rebels damaged the roads for blocking previous regime's intervention and further damaged and destroyed the bridges for taking the control of Libya. In terms of finance, there is un-bearable loss happened to the infrastructure to the transport assets. The initial estimates developed by the interim government did indicate millions of dollars were needed to make the system operational. This is also important to mention that the interim head of the government took millions of dollars of loan from the Central Bank of Libya, (CBL) and allocated to the Ministry of transport.

The second question under research was not that easy; as the companies who constructed roads were Libyan construction companies. During the conflicts or uprising against the former regime, the construction companies sided away just to save their lives. The construction companies' staffs were under threats from the rebels. This attitude further undermined the activities and the transport infrastructure was further weakened as no repair and maintenance work was carried out. There was not enough support for them to come back and start reconstructing the transport infrastructure. The government with the help of the West made some efforts and invited construction companies from overseas or abroad. The companies were however bound to take one construction partner from Libya and the companies were not competent enough but took the part in re-construction of the transport infrastructure. The honesty of the new companies is not doubted however, their skills were not matching even the old prescribed national standards of construction. The interim government does not have a choice, but to bring trustable companies to reconstruct the transport infrastructure. Though the government encouraged the people to make investments in the transport sector but failed in building investor's confidence. This increased the problems and created chaos in between the government and investors.

The third question is very important; the annual reports presented by the transport ministry suggest that ministry failed to bring new companies in the transport sector of Libya. During the up-rising, the leading transport companies in Libya did not support either side; hence, interim and elected government did not show confidence in them. The local Malaysia who is still a threat to the government did not let the companies to operate services in between the cities. The report

further stated that the company buses were taken by the rebels and burnt. This is the point where the bus companies faced serious problems and were not ready to come back. The report also detailed the damages caused to the private taxi companies and other logistics. This is important to mention that bus and taxi companies etc who took loans from Central Bank of Libya failed to pay their monthly instalments; this has worsened the situation and having sustainability in the transport sector virtually difficult.

It appears that rule of law is not in place, the authorities concerned are not taking proper measures and those who are causing and challenging the laws are not prosecuted. This has created a developmental gap between the transport companies (taxi, buses, trucks and heavy duty vehicles) and ministry of transport. The Ministry of Transport during 2012 decided to invite all the companies who used to operate in the previous companies on board to discuss the future strategies about the transport sector. Though the meeting was convened, but its outcome was not enough to convince the companies to come back. The transport services between the cities are not trustable any more.

Food is imported from Egypt, Tunisia and other African countries to Libya. The companies who provide logistics were mostly from the foreign countries. Though there was also some government owned companies. During the conflicts, the Libyan transport companies were not in operation due to the threats from the rebel groups, while the foreign logistic companies were also in fear, in addition, the roads and bridges were damaged, and this stopped the companies to operate inside Libya. The interim government used the exporters' vehicles at the government risk and paid more. The interim government was unable to offer any of the contracts for reconstruction of damaged infrastructure. However, the first elected government offered some concessions to the construction companies. This is hoped that the government should create environment so that the new companies play their role in re-constructing the damaged infrastructure in the transport sector. Economic activities were reduced to the extent that many Libyan people went out of jobs such as helper, distributors, drivers and managers etc.

The interim government remained involved in other activities and could not encourage the construction companies to re-start development work. Though the period under interim government was too short but still this created a big gap in the development activities. The damaged infrastructure of especially transport sector was not given importance. However, the first elected government took some steps but due to the weaknesses within government did not let the development work to re-start. But still there is a hope that current government would bring overseas construction companies to bring investment and skills to make the Libyan transport system as sustainable.

## VII. DISCUSSION

The above issues mentioned in the results section refer to reconstruction and bringing sustainability in the transport sector of Libya. The damaged infrastructure needs immediate

attention of the authorities concerned. While narrowing down the sustainability issues in the transport infrastructure, the interim government cannot be blamed but the first elected government is responsible for not building confidence in among the construction companies. According to [1], the current government policies are clear now to provide support to the transport sector and build general public's confidence. Therefore this needs transparency and then this is likely to accept that governments' agenda for a short time might bring a solution. However, the fragile conditions in Libya are many and the government is unable to control all the possible threats faced by infrastructural development. The people are suffering because of lack of monitoring and examining performance of the ongoing projects. The government's priority in having sustainability in the transport sector does not correspond to [4] who linked economy, environment and social wellbeing for obtaining sustainability. Therefore, there is need to re-visit the Libyan government policies of developing infrastructure.

This is important to mention that in Libya, the first Prime Minister has been sacked by the parliament, and there is chaos about the government. The parliament has been attacked by the various groups, and some of the members have been kidnapped. This is directly impacting legislation. People cannot invest in any of the projects due to absence of appropriate legislation. The only way forward to deal the issues of infrastructure refers to legislation. The sitting parliament should take these steps to uplift naïve transport system. The system cannot absorb the shocks of the wavering policies. Therefore, this clearly shows that though government wanted to establish the transport sector, but this seems difficult. The results of setting priority of Libyan government are not in line with [2] who actually suggested a framework for having sustainable transport infrastructure.

The bureaucratic attitudes and un-necessary delays is perhaps the third step that did not let the construction companies to comeback and this is the hurdle that must be managed by the authorities concerned. In doing so, it might encourage the companies to step in and provide technical support to the transport infrastructure. The research investigation results indicate that sustainability though provides encouraging ways but still lengthy procedures needs to be managed through legislation. The government agenda is in line with this argument; however, since year 2012, the ministry of transport did not convene even a single meeting or consultation with the former transport companies. The transport system is not that promising and needs therefore radical changes. However, there is hope that in days to come, the government would consider the private sector and through commitments could provide enough space to the companies interested to take part in the re – construction processes that are sustainable in the transport sector.

The study for three years indicated the presence of barriers. The skills, knowledge and experience of the construction companies in the transport infrastructure are the points to be considered as barriers. Though, the previous government encouraged the Libyan nationals and only transferred some of the companies to some groups, but at the government expense.

The companies could not provide satisfactory results. This forced the government to allow or bring international construction companies to build the infrastructure. However, time did not support such companies and during the conflict, Chinese, German and Turkish companies just closed their offices in Libya and fled to their respective countries. Therefore, this suggests that the foreign ministry of Libya could have played a role to bring back these companies, but failed. The transport infrastructure is not that responsive, population is growing 3.5% and demands for urban and rural transport is also increasing. Therefore, the planners and implementers in the ministry of transport should re-strategise current five year plan.

The results do not agree with [9] as three aspects of developing sustainability such as economic, social and ecological processes do not fit in Libya scenarios. But do agree with [14] where wealth issuers have an impact upon the sustainability of infrastructures. The review of Libyan case is line with [3] where many barriers threaten the functioning of infrastructures and similar threats are affecting the Libyan transport infrastructure. The main issue seems to be privatization. This review therefore strongly recommends for privatization in the transport sector of Libya.

#### VIII.CONCLUSION

There is urgent need for the Libyan government to determine its priorities and these should be highlighted in the current or next coming five years plan of developmental activities. Tripoli, Benghazi, and Sabah should be declared metropolitan cities in order of priority. The city managements should be given free hand to deal with the transport infrastructure. In addition, private sector should be encouraged, but under the prearranged rules and regulations. The Libyan parliament should legislate about upgrading of infrastructure especially transport with differentiation of rural and urban.

It appears that currently there is big gap in the planning and implementation of sustainable transport infrastructure. Without sustainable and trustable infrastructure, there is no hope that Libya can easily come out from this transition. The effectiveness of any government is the imminent issue that is missing in the agenda of the present government.

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