

**FACTOR OF ACCESSIBILITY AS A CATALYST TOWARDS  
DISASTER MANAGEMENT – CASE STUDY OF LYARI  
EXPRESSWAY, KARACHI**

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# FACTOR OF ACCESSIBILITY AS A CATALYST TOWARDS DISASTER MANAGEMENT – CASE STUDY OF LYARI EXPRESSWAY, KARACHI

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## Abstract

One of the fundamental attributes that ensures effective disaster management is accessibility to and from the sites of actual disasters. In post disaster situations, the damages to the common infrastructural components such as bridges, culverts, roads and streets obviously cause impedance in relief and disaster management works. As the accurate prediction and targeting about the actual sites of disasters is not possible, an overall physical development strategy is normally adopted whereby multiple options of accessibility are developed and strictly safeguarded. In other words, the development projects and the usual pattern of urban development is planned in such a manner that the factors of accessibility are not compromised. In contrast to this very vital consideration of disaster management, several development projects have been planned and implemented in a manner where they are likely to cause severe hindrances to relief and rescue operations. One such project is the Lyari Expressway which is being built in Karachi since 2002. The NED University has been studying this corridor and Lyari Expressway Project as a part of joint study with a consortium of four foreign universities of Europe and Asia under the aegis of Asia Link Programme, European Commission, Brussels.

This presentation is aimed to present the profile of Lyari Expressway and its probable implications on any potential process of disaster management. To put the Lyari Expressway project in perspective, a comprehensive background is provided along with a review of the dominant issues. Analysis and conclusions derived from the studies are also presented in the end.

## 1. INTRODUCTION AND BACKGROUND

### 1.1 Karachi – A Brief

Karachi is the primate city of Pakistan. Located along the shoreline of the Arabian Sea, Karachi depicts the phenomenal growth pattern over the phases which is characteristic of a typical major port city of the developing world. Established as a small local port and subsequently developed into a military base by

the British, the city had a population of 14,000 in 1839 and a total built up area of 35 acres within the city walls. The city growth gained impetus after the British consolidated their activities in Sindh and Punjab and used Karachi as a major transit base for goods and military purposes.

Physical development of the city continued in a haphazard fashion soon after the occupation by the British. Connections of upcountry provinces through railway in 1861 provided a major breakthrough in the development of tanneries, oil storage, wood processing industries and warehousing. These activities generated job attraction for the inhabitants of adjoining provinces who migrated and settled along the banks of river Lyari. By 1900 the population of the city had exceeded 100,000.

This process continued till 1947. The city grew steadily with stable trade and commerce activities which were proportionately supported by the rail and road transit networks that connected the city to the up-country. The port/shipping facilities for transportation of raw materials and finished products also expanded. Karachi airport was one of the earliest airports in the sub-continent to link the city to some of the remote regions. Besides the city possessed a responsive population that remained keen in all these developments. In 1946 the city had a population of 435,000 and was labeled as one of the best maintained cities of South Asia (Ahmed, 1998).

After independence from the colonial rule, the economic growth continued to accelerate amidst the rising multitudes of refugee population from India. The population multiplied 2½ folds within four years and reached to 1,050,000 in 1951. Since then the anomalous growth of the city has taken several leaps and today it has a population of over 15 million with 4.5 percent annual growth rate.

The primacy of the city has remained. Karachi is still the hub of economic activity in Pakistan and major employment magnet of the country. It provides 25 percent of the total federal revenue and 15 percent of gross domestic product of the country. Besides 50 percent of the country's bank deposits and 72 percent of all the issued capital is from Karachi (Hasan, 2002 and Ahmed, 1998). From this account, it is easy to establish the significance of the city in the political and economic context of Pakistan.

## **1.2 Planning Process in Karachi**

Despite the fact that Karachi has remained as the single most important economic, financial and business hub of the country, the process of development has followed an adhoc approach atleast during post independence period. That is to say several plans had been prepared to guide the urban development during the time period, however no one was given the requisite legal and administrative cover. Among the various plans prepared for the city, the Karachi Development Plan (1973-85) and Karachi Development Plan (1986-2000) were the most comprehensive attempts with reference to concept, approach and applications in the planning process. Both of them were used as sideline advisory documents without any institutional commitment extended by the respective implementation bodies in the city. Lack of political commitment by the changing governments; existence of a

multitude of planning, development and management agencies in the city and the growing influence of vested interest groups in a bid to extend the adhocism in development were some of the barriers that did not allow the plans to be implemented. In the absence of guiding plans, the urban development and management tasks were largely undertaken through the formats of development projects of various scales and profiles. Choice, decision making, conceptualisation, tendering, execution and performance of these projects has been based on disjointed premises, given the turbulent political history and attempts of institutional re-vampings particularly in the local government tier. Lyari Expressway (LEW) is an example.

## **2. LYARI EXPRESSWAY**

### **2.1 Project Details**

Lyari river is a rain fed water stream that enters Karachi from the northern edge of the city region and after passing through the city lengths, falls into the sea towards the south. In 1978, heavy rains caused flooding in Karachi. In the Lyari corridor, a number of houses along and on the riverbed were washed away, and about 200 people lost their lives. As a result, the Water and Power Development Authority (WAPDA) prepared a flood protection plan for the Lyari River belt. Monuments were erected to mark the flood levels on both banks, and embankments were proposed, along with a proposal to channel the river. However, this plan was not implemented either. In 1986, a group of public-spirited citizens proposed the Lyari expressway. This proposal consisted of a plan to build a road from the port, along the Lyari River to the superhighway, which is one of Karachi's main link with the rest of Pakistan. A government study found that the construction of the Lyari expressway along the riverbanks was not feasible, as over 100,000 people who, at the time, were living along the river would have had to be evicted as a result of its construction. However, the idea of the expressway appealed to politicians and planners and so, in 1989, the Karachi Development Authority involved the Canadian International Development Agency (CIDA) in the Lyari expressway project. CIDA proposed an elevated corridor on columns in the middle of the river as the most feasible option, as it would not displace any Lyari corridor communities. The cost of the elevated expressway was put at 6 billion rupees (at the time, equivalent to around US\$ 133 million). However, in 1993, rains flooded the lower-lying Lyari corridor settlements again and, as a result, planners proposed building the Lyari expressway along both banks as a solution for flood protection, and also a toll to generate funds for cost-recovery. The option of elevated transit way, however, remained unaffected (Hasan, 2005).

The Urban Resource Centre (URC), a Karachi NGO involved in research and advocacy, objected to both the proposals. The URC's objection was that the expressway was not an alternative to the northern bypass. It would cause immense noise and air pollution in the most densely populated of Karachi's settlements, the elevated option would be aesthetically ugly, and the riverbank roads would displace poor communities. Nor would the expressway project open up land for relocation of the inner-city markets, warehousing and informal manufacturing units, as the

northern bypass would. The URC expressed its point of view through a number of fora and newspaper articles; however, there was little or no response from politicians and government planners on the concerns raised by the URC (Hasan, 2005; Ahmed, 2003 and 2004). Focused field research on LEW and its environs was begun by the Architecture and Planning Department, NED University, Karachi since 2002 onwards which generated several useful outputs.

Advocacy and mobilization of affected and concerned communities began soon thereafter. The URC then held meetings along the Lyari corridor to explain the Lyari expressway project to the communities. Separate meetings were held for women and for men. As a result, the Lyari Nadi Welfare Association (LNWA), consisting of 42 community organizations, was formed. Meanwhile, the URC also developed alternative plans for redirecting port traffic from the port to the super-highway, and prepared cost estimates for them. The plans, along with photographs, maps and estimates, were given to the LNWA and they, in turn, contacted their provincial and national representatives (members of the provincial assembly and members of the national assembly) and the chief minister of Sindh. As a result, the project was delayed. Canadian government was informed about the pros and cons of the situation which soon backed off from its assistance to the project.

Some important policy makers were convinced that an elevated Lyari Expressway is a much better option than the 'at-grade Karachi Northern Bypass'. Ironically, this decision was taken by a political government that otherwise was considered as a staunch proponent of the rights of the people of Lyari. In 1994, the Karachi Metropolitan Corporation (KMC – now defunct), decided to build the expressway on either side of the river on a Build–Operate–Transfer (B–O–T) basis, as an alternative to the northern bypass. The cost of the expressway was estimated at 720 million rupees and it was to pass under 12 existing bridges on the river. Eight thousand shacks and small business enterprises at the lower end of the river were removed for its construction, and no compensation was given to those who were affected; and since almost all those affected were encroachers, they were politically weak and unable to put up any resistance. The project was further modified after the involvement of the Frontier Works Organization (FWO) – a military contracting enterprise – and, as a result, the underpasses were abandoned in favour of bridges over the existing bridges, and the cost increased to 3,200 million rupees. A middle east based financial syndicate was contacted to build the expressway on a Build–Operate–Own (B–O–O) basis (Hasan, 2005). The changes to the project also meant a considerable increase in the number of those who would be affected, and the demolitions along the Lyari River led to opposition to the project by citizens, NGOs and the more consolidated and comparatively politically powerful Lyari communities, as a result of which a number of politicians became concerned. This opposition led to public hearings in 1996, which were arranged by the senior minister of the Sindh government. As a result of the public hearings, it was decided to build the northern bypass and to abandon building the Lyari expressway. Subsequently, in 2001, the Karachi Port Trust, after considerable consultation with interest groups, finalized the proposal for building the northern bypass. It was to

join the super-highway well beyond Karachi's municipal limits so as to minimize congestion on Karachi's main exit point to the northeast. However, in June 2001, the government decided to build both the northern bypass and the Lyari expressway within the northern bypass budget, on the basis of the FWO plan and in violation of the decisions taken as a result of the 1996 public hearings (Figure-1).

The NHA expressway proposal prepared in 2001 was for a 16.5-kilometre three-lane road along both banks of the Lyari River. The expressway which is now being built, consists of 16 overpasses and the construction costs were estimated at 5.1 billion rupees, with the cost of resettling those to be evicted at 2.1 billion rupees (Figures 2-8). Completion time for the project was set at three years. Evictee resettlement would consist of the provision of a plot measuring 80 square yards in the peri-urban areas of Karachi for each demolished housing unit, plus 50,000 rupees in cash. A re-settlement plan is also underway to shift the households who have been shifted from the various affected locations. It may be pointed out that this approach is contrary to the international conventions and national laws that are binding in such situations.

## **2.2 Dominant Issues**

### **2.2.1 Affect on Urban Environment**

The expressway project is not part of a larger city planning exercise. There are cheaper and easier ways of easing traffic flow in Karachi, which have been proposed repeatedly by the Karachi Development Authority's Traffic Engineering Bureau, Karachi academics and professionals. More than half of those affected by the expressway do not live either on the riverbed or in areas prone to flooding. They are simply being relocated because their homes and businesses are in the expressway alignment. An expressway is not necessary to rehabilitate those who are living on the riverbed or in the flood zone. In addition, the building of the expressway does not solve the city's major environmental problems, or those of the areas it passes through. These problems can only be solved by relocating the inner city's major wholesale markets and congested informal industrial activity and warehousing. Demolishing the settlements and building the expressway would introduce land-use changes along the corridor for which there is no planning and no infrastructure.

### **2.2.2 Impacts on Ecology**

If the expressway is going to be used for heavy port-related traffic, it will cause severe environmental pollution, and hence further degradation along the already densely polluted Lyari corridor. This degradation will lead to land-use changes and the expansion of industrial, storage and transport-related activities that are inappropriate and that should be shifted from the inner city. On the other hand, if the expressway is to be used only for intra-city traffic, a different sort of land-use change will take place. In this case, there will be a sharp increase in land values and this will lead to evictions in the remaining old settlements along the corridor.

### 2.2.3 Socio-Economic Relevance

The Government of Pakistan is a signatory to the Global Plan of Action of the UN City Summit (Habitat II) of 1996, which is against forced evictions and demolitions. Section 12 of the Pakistan Environmental Act 1997 requires any proponent of a project to submit an environmental impact assessment if the project is likely to cause any adverse environmental effect and, on this basis, must seek approval (or modification) of the plan from the relevant federal authority. This has not been done in the case of the Lyari expressway. Again, land can only be acquired from leased settlements and notified *katchi abadis* (squatter settlements) through the Land Acquisition Act and its well-laid-out procedures. These procedures have not been followed.

### 2.2.4 Accessibility and Disaster Management

It is important to note that the Lyari river runs through integrated and intertwined communities on either side of the banks. Noted amongst them include Mohammadi Colony, Rehmatya Colony, Niazi Colony, Hasan Auliya Village, Zia-ul-Haq Colony, Rexer Lane, Bengali Para, parts of PIB Colony, Old Golimar, Liaquatabad, Gulshan-e-Iqbal and Sohrab Goth. There are eight major bridges and more than three dozen small scale informal culverts used for the movement of pedestrians and small scale vehicles/animal carts (Table-01). In situations of external traffic jams and similar disorders, the internal connectivity of the area along the Lyari banks has been satisfactory to a sizable extent. However the creation of the retaining wall has severely jeopardized the possibility of optimum accessibility across the entire right of way of the project. The disadvantage communities living or working close to the river bed have to face the severe locational disadvantaged caused by this insensitive design. It is feared that the mobility along the corridor of Lyari Expressway shall be severely hampered as a consequence the retaining walls, especially at a localized level. Possible disasters for which the city must prepare for, include earthquake/tsunami, flooding, fire and terrorism. Each eventuality requires a comprehensive management plan with factor of accessibility as the prime pre-requisite for minimizing damage and loss of human life/property.

## 3. ANALYSIS

### 3.1 Perceptions about Accessibility

It has been adequately proved that multiple communities, enterprises and interest groups existed along Lyari river and its environs. They had a stable pattern of every day life and utilization of space in the area, including roads, streets and lanes. The massive evictions and dislocation of population has given rise to a feeling of disorientation amongst people. Much of this feeling has a psychological bearing where people feel that the creation of retaining walls and other physical changes has obstructed the pattern of usual movement. It is common sense that in the eventuality of any disaster, the first rescue effort is done by the people themselves. Motivated and well integrated communities develop an internal capacity to effectively respond to such efforts. However, in the present scenario, existing Lyari

communities find themselves disjointed, traumatized and adversely affected due to LEW project and its repercussions. They may find it difficult to avail the existing possibilities of accessibility because of de-motivation and disorientation.

### **3.2 Physical Obstructions**

The construction of the LEW in its present format has created many problems with respect to vulnerability. In the eventuality of a mass evacuation exercise, excessive pressure shall be built around the major bridges. There is a sizable possibility that a bottle neck like situation may arise, impeding the normal course of vehicular/pedestrian flow. Given our indisciplined driving attitudes and mobility patterns, it may cause severe problems. The crossing along SITE Town area shall be even more problematic as the difference of levels shall make evacuation near impossible exercise.

### **3.3 LEW and Earthquake**

It is a completely unknown variable whether the design and execution of LEW has followed the respective standards and requirements for an earthquake eventuality. The cladding panels of concrete along the retaining wall have been interlocked with very basic details. It is feared that in case of a tremor, they shall dismantle and crumple down. Due to their overall size and volume, these panels may cause huge dumps of rubble and compounding damage thus further compromising accessibility. The bridges are under further vulnerable position as the LEW flyovers hang on them. In any failure, not only will the LEW be disconnected, the bridges underneath may be adversely affected due to resulting collapse of the LEW. It may also be noted that a potential rupture along this network of roads and bridges – which run all through from the port to Sohrab Goth – shall have direct repercussions on the overall disaster management efforts in the city.

## **4. CONCLUSIONS**

LEW has been a project which evolved as a useful idea along a pressing problem however designed in a very insensitive manner. As it was not a part of the key planning exercises, its overall relevance in the transportation system of the city as a whole could not be established. Whereas it claims to enhance the accessibility of vehicles emanating from the port, LEW has created many problems for the entire environs. The issue of accessibility during the eventuality of disasters is one of them. Any potential damage or collapse in the structures of LEW is likely to generate a chain effect, thereby hampering in the rescue and relief operations.

Disasters arise unannounced in a fraction of time. They leave long lasting impacts which often take decades for remedials and repairs, human losses and sufferings notwithstanding. It is the need of the hour that a scientific approach of fact finding, analysis and planning must be adopted for mitigating the overall effects of the disasters in general and exigencies evolving from mega projects such as LEW in particular.

**TABLE-01: LYARI EXPRESSWAY:  
SUMMARY OF MAIN CROSSING ON THE RIGHT OF WAY**

<b>No.</b>	<b>Location</b>	<b>Remarks</b>
1.	Mirza Adam Khan Road / Agra Taj Colony	Vital link for coastal communities towards western fringe of Karachi.
2.	Chakiwara Road / Miran Naka Chowk, Shersha	High density informal high rises on either side of the connection.
3.	Kumbharwara Road, Lyari	Combination of medium rise and high rise structures; mixed landuse including industries.
4.	Manghopir Road, Rexer Colony	Vital government offices of SITE Town, government residences and mixed landuse along Old Golimar.
5.	S.M. Toufiq Road, Lalukhait (Liaquatabad).	Various key religious building complexes; dense mixed landuse.
6.	Sir Shah Suleman Road / Gharibabad.	Dense informal settlements on edges; vital link between Gulshan-e-Iqbal and Liaquatabad / Nazimabad.
7.	Rashid Minhas Road	Formal / informal settlements; vital link between Gulshan-e-Iqbal and Federal B. Area.
8.	Super Highway / Rashid Minhas Road	Vital link between Federal B. (Industrial) Area and surrounding neighbourhoods.

*Source: NED Field Survey, 2006.*

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