

Business Case: Establishment of Mini Fire Brigades

Support to Safety Retrofits and Environmental Upgrades in the Bangladeshi Ready-Made Garment (RMG) Sector

Why a Mini Fire Brigade is a Good Investment?

Fire is a constant threat in textile factories. While fire prevention is important, accidents do sometimes happen, often resulting in fires that are beyond the ability of the in-house fire wardens to cope with. In this case a timely response by local fire services is key to secure the lives of employees and prevent the loss of properties and goods. However, due to narrow roads and heavy traffic on in the road, the Bangladesh Fire Service and Civil Defence (BFSCD) often faces infrastructural constraints that limit their ability to respond in time.

Since the fire at Tazreen Fashions Ltd. in 2012, over 140 incidents of fire have been reported in Bangladesh's textile and garment industry.¹As the cost of fire damage increases

Advantages of a Mini Fire Brigade at a glance:

- A rapid response and risk reduction unit - Early intervention in the case of fire outbreaks prevents loss of lives and saves properties
- Improved compliance
- Enhanced workplace safety, attracting skilled workers and international customers
- Enhanced reputation towards own employees and local community as well as better business image and brand value globally

with response time at the rate of between BDT 2.5 lakh and BDT 6 lakh per minute², a quick response is essential and can drastically reduce the human and financial impact of factory fires.

An Innovation that has proven to enable significantly quicker response times is the establishment of a Mini Fire Brigade (MFB). An MFB located amongst factories allows fire fighters

¹Solidarity Center: <https://www.solidaritycenter.org/wp-content/uploads/2017/04/Bangladesh.Fire-Chart.April-2017.pdf>

²Challands, Niel (2010); The Relationships Between Fire Service Response Time and Fire Outcomes

to arrive on the scene within the critical period before a fire spreads, control fire incidents, avoid loss of lives and severe injuries as well as damage to properties and goods, and bridge the critical time until the central fire fighting units arrive at the scene if needed. This is especially important for those factory clusters which have narrow access roads, are located far from central fire stations or lie in heavy traffic zones.

In addition to fire fighting, MFBs can also advise the factory management on risk prevention and provide fire safety trainings for factory fire fighters and safety personnel.

Within one year after its establishment, the first MFB in a textile cluster in Gazipur has successfully conducted 29 fire fighting and rescue operations. During the operations assets worth BDT 40 crore were recovered and multiple lives were saved.

An MFB can be established under public private partnership arrangements whereby costs are borne by the Bangladesh Fire Service and Civil Defence Directorate as well as the private partner(s).

Detailed information about the cost and benefits can be found on the next page, followed by a case study on page 3. Technical details on the implementation process as well as possible means of financing can be found on pages 4 to 5.

Protect Your Factories and Establishments, Lower your Costs
Beyond protecting your employees and saving lives, the establishment of an MFB also results in a range of additional benefits.

Direct Benefits

Saving lives and reducing injuries	In most circumstances early intervention in the event of fire will result in fewer casualties and injuries, which in turn will lower risks of compensation payments and medical costs.
Reduced damage to properties and goods	Early fire response helps to control fires during the initial critical period, which significantly reduces the risk of damage to property and goods. Studies from the US and New Zealand suggest that the average increase in damage per minute of fire is between BDT 2.5 lakh and BDT 6 lakh, ^{3,4} costs that

³Challands, Niel (2010); The Relationships Between Fire Service Response Time and Fire Outcomes

can be avoided if a fire brigade is able to engage with the fire at an early stage. Results of a first Mini Fire Brigade pilot project in Gazipur, Bangladesh, supports this assumption by showing that average savings based on early interventions are roughly BDT 1.3 crore per fire incident.

Indirect Benefits

Better goodwill with international buyers	International buyers prefer suppliers which meet not only the legal requirements of the country but also their own expectations. Lower fire risks in a company imply lower business risks for the international buyer
Enhanced reputation towards own employees and local community	Establishing a Mini Fire Brigade within the local community can significantly increase factories' reputation and standing as well as attractiveness as an employer, making it easier to find skilled workers and reduce employee turn-over rates.

Estimated Budget for Establishing a Mini Fire Brigade (example of MFB in Gazipur)

Type of Investment	Cost (BDT)
Land cost (10 Decimal) – Per decimal = BDT 30 Lakh	3 crores
Construction of building with all fittings	1.35 crore
Installation of utility system	21 lakhs
Procurement of furniture and other required equipment for MFB station	10 lakhs
Interior Consultancy Charge	1.87 lakh
Procurement and installation of Deep Tube Well	12 lakhs
Procurement of one fire vehicle (Water Tender) and equipment for MFB	2 crores
CD VAT and Tax for fire vehicle/equipment	40 lakhs
Release of the Fire Vehicle and equipment from Chittagong Port Authority by a Customs Clearing Agent	1 lakh
Set up of wireless tower and other communication facilities	4 lakhs
Average Total Costs	BDT 7.25 crore

In addition to these benefits mentioned above, you may also benefit from lower insurance premium, since lower risk will also put you into a better bargaining position. As per international practices, insurance underwriters may take into the account the reduced risks and adjust the insurance premiums once insurance is up for renewal. In the international context, depending on the design of the system and the areas to be protected, the discounts can range from 5% to upto 45%. The higher discounts are usually only available when the factory has also installed features such as sprinkler protection, regular monitoring, installation of fire extinguishers and dead bolt locks. Such insurance savings might also depend on the fire resistance and occupancy risk level of the building.

In Bangladesh first discussions with representatives from the Insurance Association are already taking place along these lines looking into the possibility of similar reduced insurance premium for adequately protected (low risk) buildings. In case such approach is accepted, the establishment of an MFB might help you to renegotiate insurance premiums in the future and realise corresponding savings.

The establishment of MFBs will furthermore most likely contribute to improving the overall image of the whole garment and textile sector in Bangladesh, attracting more international companies and strengthening the market.

Calculating the Cost of Establishing a MFB

The cost for establishing a MFB depends on factors such as the area, location and size of the land and building for the MFB station and/or the availability of building materials. When the initial investment for an MFB is shared by multiple private partners, the required financial inputs for the individual firm can be minimised. Estimates suggest that establishing a MFB would cost an initial investment in the range of approximately BDT 3.7 crore. Furthermore, a considerable share of the necessary contributions is provided by public partners. At the pilot MFB in Gazipur with 17 fire fighters (to ensure 24-hour availability), the salaries of 11 full-time firefighters from the Bangladesh Fire Service and Civil Defence are covered by the government, while salaries of six full-time industrial fire fighters are covered by the private partners.

In addition to the initial investment, an MFB requires smoothly operation costs of roughly BDT 34,000 for utilities, fuel and maintenance, some of which can be contributed by BFSCD.

⁴RapdiSOS, Quantifying the Impact of Emergency Response Times

Case Study on the 1st Pilot Mini Fire Brigade (MFB) in Gazipur, Bangladesh

The first Mini Fire Brigade in Bangladesh has been established as a public private partnership between the Bangladesh Fire Service and Civil Defence, Dulal Brothers Limited (DBL Group) and GIZ in the industrial cluster of Kashimpur, Gazipur. The concept was developed by the GIZ Global Initiative on Disaster Risk Management (GIDRM) in collaboration with the GIZ program Promotion of Social and Environmental Standards in the Industry (PSES) and is implemented jointly by BFSCD, DBL Group and GIZ.

Trained Fire Fighters at Mini Fire Brigade Station, DBL Group, Dhaka

Project Overview :

- **Location:** Industrial Cluster of Kashimpur, Gazipur
- **Operation Range:** One (1) Km Radius, Extended Upon Capacity and Demand
- **Controlled and Extinguished Fires (07/2017 – 04/2018):** 29 Factories and Establishments in the Industry and Community
- **Average Response Time:** Less than 5 Minutes (Incidents within 3 kilometers)
- **Estimated Value of Assets Recovered:** Around BDT 40 Crores or EUR 4 Million
- **Initial MFB investment cost:** Around BDT 3.7 crore

Implemented Measures

Land and infrastructure with a roofed vehicle parking spot and a station building for the Mini Fire Brigade station has been provided by the DBL Group. The Bangladesh Fire Service and Civil Defence directorate provided 11 full-time fire fighters, while DBL provided 6 additional full-time industrial fire fighters. In cooperation with German fire fighting experts BFSCD ensures adequate training for all full-time and voluntary members of the MFB. The MFB has 2 fully equipped vehicles and a hydrant installed in the network. The system includes different extinguishing systems, a hydraulic cutter and spreader, which will enable the team to operate effectively. For communication the MFB mostly relies on telephones, SMS and walkie talkies.

The MFB unit covers an operational area within a 1km radius including 48 factories, and approximately 67,200 employees as direct beneficiaries.

Challenges during Implementation

As the MFB in Gazipur was the first of its kind in Bangladesh initial investment, provision of full-time fire fighters, awareness raising for fire fighters, and securing continuous rolling

finance were key challenges faced during the implementation phase. They were overcome by the mutual cooperation of DBL, BFSCD and GIZ.

Investments and Savings

Initial investment for setting up infrastructure and purchasing specialized equipment was around BDT 3.7 crore. Implementation phase took 18 months. Operational, fuel and maintenance cost of the MFB is BDT 34,000 per month.

During the first 10 months of operation the MFB could address 29 fire incidents within the industrial cluster it is located in, recovering an asset value of around BDT 40 crores. It is worth to mention that this calculation includes only physical assets, not taking into account the value of lives saved. When relating the estimated values saved to the initial investment cost, the MFB has recovered its initial investment costs within 4 months.

Projected direct annual savings from the operating period is BDT 48 lakh from responding to fire incidents.

Key Performance Measures

Performance of the newly established MFB can be measured in the number of fire accidents attended, the total savings of physical assets and the number of human lives saved. The unit in Gazipur has attended 29 fire incidents during the first 10 months and saved the physical assets worth of around BDT 40 crores.

Improved prevention strategies implemented at the factory site could further reduce the probability of fire and damage in future.



Mini Fire Brigade of DBL Group, Dhaka

Features and Tasks of Mini Fire Brigades

Mini Fire Brigades (MFB) are not meant to substitute existing fire fighting forces, but to support them. The concept is based on three types of employees: professional fire fighters, auxiliary fire teams or industrial firefighters from the factories and volunteers from nearby communities. Major tasks of the unit include:

- Advising factory management on risk prevention and fire safety.
- Training of factory fire teams.
- Saving lives and administering first aid.
- Extinguishing smaller fires and preventing the spread of fires.

The Mini Fire Brigade is staffed 24 hours a day and will ideally have an operational range of one kilometer to ensure that the response time will be within the critical 8-10 minutes after the incident. The operational range may be extended based on demand and capacity. To enable the MFB Team to operate effectively, each unit will be equipped with a specialized vehicle including different extinguishing systems, a hydraulic cutter and spreader.

The Bangladesh Fire Service and Civil Defence Directorate will provide full-time fire fighters under government budget and ensure adequate training for all full-time and voluntary members of the MFB in cooperation with international fire fighting experts.

Key Steps Required for Implementing

As per experience, the initial set-up and establishment of a Mini Fire Brigade will take one (1) year (including planning and design).

For the implementation of the MFB, following steps have to be taken into consideration:

- Employment of **Full-time Fire fighters** from Bangladesh Fire Service and Civil Defence (BFSCD)
- Employment of **Industrial** and / or **Community Fire-fighters** from Private Partner(s)
- **Standard Operation Procedure for MFB**, developed by BFSCD
- Capacity Building **Trainings** for the **Manpower**
- Procurement of a **Fire Truck with Water Tender**

- Procurement of **Fire fighting Equipment** and Apparatus
- Obtaining the necessary rights for the required **Land** and **Building Infrastructure**
- Construction of the **Mini Fire Brigade Station**
- Construction of a **Water Reservoir**
- Procurement and construction of the **Communication Tower** and Setup
- Establishment of the MFB **Hot Line**

Availability of materials in Bangladesh

All the required materials such as the fire truck, firefighting and rescue equipment, etc. can be sourced via local or international traders. Contact DBL and BFSCD for their recommendations.

Nature of Services Required to Support the Implementation

- Engineering assessment and installation services for fire station
- Maintenance services for fire fighting equipment and fire stations
- Fire fighter training of selected personnel of BFSCD, industrial and / or volunteer firefighters

Sources of technical support/expertise used

For further references and expertise you can refer to the website of the Bangladesh Fire Service and Civil Defence:

<http://www.fireservice.gov.bd>



Trained Fire Fighters at Mini Fire Brigade Station, DBL Group, Dhaka

Possible Sources for Financing

SREUP credit line could be a good source of financing for such an investment.

Main Feature of SREUP Credit Line	
Loan Type	Normally Term Loan
Discount	Provision and possibility of 10% discount from loaned amount
Loan Tenure	3-5 years in general and in special case up to 7 years
Loan Limit	Normally up to 1 Million Euro and can be increased up to 3 Million Euro in special cases
Interest Rate	7% p.a. (maximum)
Grace period. Debt : Equity Ratio Repayment	All issues are subject to agreement between borrower and lender



Closer Inner view of fire truck of mini firebrigade



Trained Fire Fighters at Mini Fire Brigade Stations, DBL



Inner view of Fire Truck at Mini Fire Brigade Station, DBL, Dhaka



Trained Fire Fighters in action for Fire Fighting

Conclusion

Installing Mini Fire Stion is an advanced fire safety measure for RMG factory which can protect millions of Euro worth goods and properties from fire accident at working place and valuable lives of workers and employees.