

**Policy brief**

**Economic and social sustainability of the ready-made garment industry in Bangladesh – the way forward**

**Using lean manufacturing tools to integrate productivity and health and safety improvements, thereby securing that the industry stays competitive in a sustainable future – more important than ever after the COVID 19 crisis**

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**1. Introduction**

The Ready-Made Garment (RMG) industry is crucial for the economy of Bangladesh and provides the livelihood for millions of workers. Despite impressive progress, it is also a challenged industry. The worldwide competition is fierce, and international fashion requires at the same time low prices, higher quality and shorter delivery. It has so far been difficult for the RMG industry in Bangladesh to catch up to the productivity level in other countries such as China. Similarly, moving up to the higher quality and thereby higher value-added garment has also been a challenge for the Bangladeshi RMG industry. Furthermore, after the Rana Plaza accident the international brands increase their requirements for social sustainability. They request RMG factories to secure safe and healthy workplaces, and it is thus not possible to head for a strong productivity increase on the expense of occupational health and safety (OHS). This development is be further strengthened by the UN sustainable development goals (SDG), which more and more global buyers include in their corporate policies.

However, working conditions not only constitute a problem because of buyer requirements, factories are hampered by high labour turnover and absenteeism as workers experience unsatisfactory conditions and look for better opportunities. Replacement of workers constitute a high hidden cost as it takes up to half a year before a new worker achieves approximately the same skill level. Yet, poor working conditions constitute a burden on workers who have difficulties in providing for their families with low salaries and low working hours as well as fatigue and pain from exposures in the work environment.

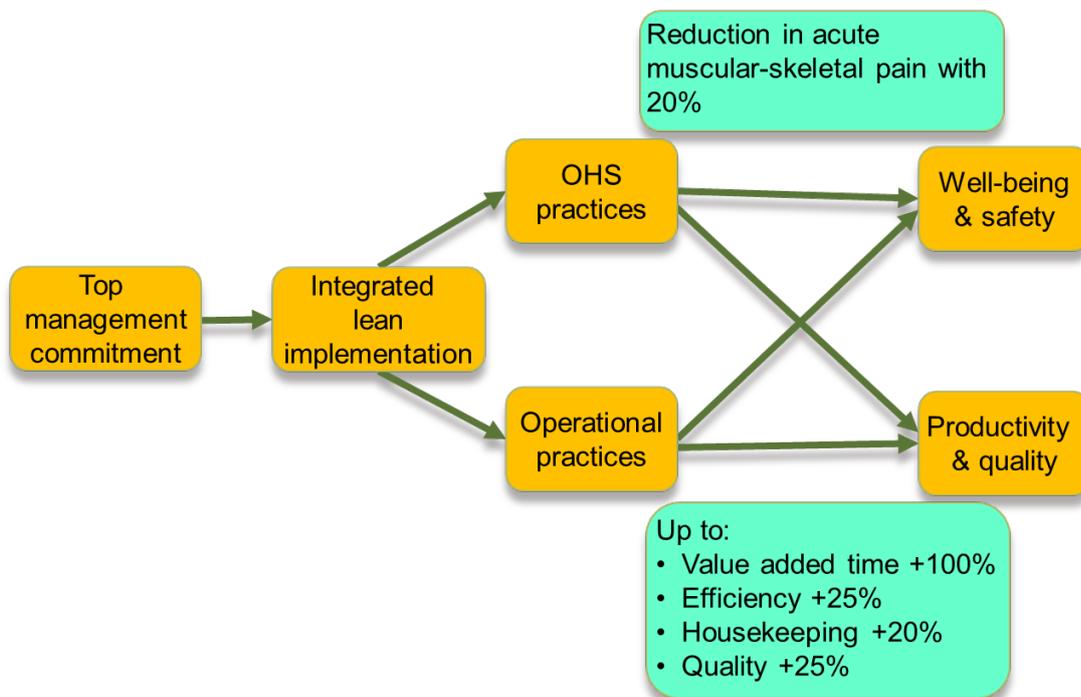
The COVID-19 crisis is further enhancing the challenges for the RMG industry, and the difficult business situation is putting even more pressure on the ability to stay competitive. Orders are low and additional cost is required to implement precautions to prevent contagion at any time.

The RMG industry is thus facing a prodigious challenge to stay competitive in the future and thereby secure the continued development of the Bangladeshi economy as well as the livelihood and health of millions of workers. Yet, there are strategies to meet the challenge and a key element is to upgrade the operations in the RMG factories to simultaneously improve productivity, quality and OHS. The viability of such a strategy has been proven by a joint project between Ahsanullah University of Science and Technology (AUST) and Aalborg University (AAU), Denmark, funded by the Danish Ministry of Foreign Affairs. We can now document that it is possible with integrated solutions based on lean manufacturing to improve both productivity and quality, and occupational health and safety at the same time.

## 2. Integrated improvement of productivity, quality and OHS

We have introduced lean manufacturing principles with integrated OHS considerations in collaboration with 12 garment factories. We measured production performance as well as OHS risks before and after the introduction of lean, as well as supported the factories throughout the process. Furthermore, interviews with managers, workers and buyers are used to identify the possibilities and constraints for integrated improvement of productivity, quality and OHS.

After just three months interventions in pilot lines we found impressive results: Value added time increased up to 100%, efficiency up to 25%, quality up to 25% and not least, workers' acute muscular-skeletal discomfort and pain were reduced with approximately 20%. Remarkably, these achievements were all obtained with a low level of investments – no investment in hardware and only limited investments in additional hours for staff to implement the improvements. In the longer-term, larger improvements can be expected as it is a basic element in the integrated lean strategy to introduce continuous improvements. Large brands have been supporting the project as they press for improvements in both productivity and social compliance. The garment factories can obviously achieve great benefits from embarking on a lean journey with inclusion of OHS. The model below illustrates how



the strategy works. It starts with top management commitment – otherwise nothing happens. When top management decides to head for the lean implementation and follow-up in management practices, the actual implementation takes places.

The next step in the lean introduction is to form groups with staff members with qualifications in industrial engineering, quality and OHS and first line managers as well as experienced workers. The groups get the responsibility to carry out the practical implementation of the integrated lean. Key tools in the improvements are depicted in the table below.

| <b>Tool</b>                         | <b>Examples of changes</b>                                                                                                                                                                                  | <b>OHS components</b>                                                                                                                                                                                                  |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5S (reorganisation of housekeeping) | <ul style="list-style-type: none"> <li>• Obstacles for production flow removed</li> <li>• Clean surfaces reducing stains and spots on garment</li> <li>• Redesign the layouts</li> </ul>                    | <ul style="list-style-type: none"> <li>• Ergonomic design of workstations with adjustable chairs and tables</li> <li>• Reduced accident risks due to removed obstacles</li> <li>• Reduce physical movements</li> </ul> |
| Time and motion studies             | <ul style="list-style-type: none"> <li>• Removal of bottlenecks</li> <li>• Removal of redundant movements</li> <li>• Reduction of cycle time by saving waste</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Merging task to create variation and reduce bottleneck</li> <li>• Using the best less strenuous sewing technique</li> <li>• Eliminates unnecessary movements</li> </ul>       |
| Value Stream Mapping                | <ul style="list-style-type: none"> <li>• Reduction of bundle size</li> <li>• Reduce non-productive time</li> <li>• Increase value addition on the process activities</li> </ul>                             | <ul style="list-style-type: none"> <li>• Reduced bundles create space for workers and reduce twisting and bending</li> </ul>                                                                                           |
| Zero defects                        | <ul style="list-style-type: none"> <li>• Tracking all defects and remove cause at source</li> </ul>                                                                                                         | <ul style="list-style-type: none"> <li>• Less bothersome rework for workers</li> </ul>                                                                                                                                 |
| Visual management                   | <ul style="list-style-type: none"> <li>• Daily updates of production targets and achievements</li> <li>• Target instruction</li> </ul>                                                                      | <ul style="list-style-type: none"> <li>• Transparency and motivation for workers</li> </ul>                                                                                                                            |
| Standard operating procedures (SOP) | <ul style="list-style-type: none"> <li>• Description of the best methods for all work tasks</li> <li>• Instruction for machine operations</li> </ul>                                                        | <ul style="list-style-type: none"> <li>• Help the workers to use the best and least strenuous methods</li> </ul>                                                                                                       |
| Continuous improvements (kaizen)    | <ul style="list-style-type: none"> <li>• Weekly meetings in front of a kaizen board with identification of improvement possibilities</li> <li>• Reduce maintenance operations and reduce defects</li> </ul> | <ul style="list-style-type: none"> <li>• Give voice and involvement of workers</li> <li>• Show appreciation of workers when their suggestions are used</li> <li>• Workers take the ownership</li> </ul>                |

There are many other tools available in the lean toolbox, but the above examples are the most useful for the standard RMG factory. They have proven to be useful in practice, they are simple and implementation is almost cost free. Even for factories with little experience in development of production, a tool like 5S for better housekeeping can provide considerable achievements.

However, it is not necessarily a straightforward thing for the RMG industry to implement integrated lean. Not all the involved factories achieved the large improvements. Some of them had difficulties in implementing the lean transformation. There are three main obstacles: 1) day to day business is taking the time from improvements, 2) limited competence in industrial engineering and lean and 3) low supervisor and worker motivation. The most important measure to meet these obstacles is top management commitment. In fact, all managers expressed strong commitment to the lean intervention, but for some of them it was only words. Real top management commitment requires that the managers show a daily interest in the lean transformation, requesting reports at management meetings

and allocate the necessary middle management time to work with lean and not least secure collaboration across the internal department for production, industrial engineering, quality and HR. Furthermore, it is top management who can ensure the necessary competences in the factory by hiring industrial engineers and organising training of the staff. Finally, it is necessary to increase motivation of the supervisors and workers. Supervisors may feel challenged by the new production principles, and workers have no experience in participation in improvements. Here top management needs to show leadership by securing a social dialogue both at factory level and in the daily operations. Lean can only succeed if both supervisors and workers are engaged in the continuous improvement activities and that can only happen when middle management and supervisors promote and follow up on worker suggestions.

### **3. Policy recommendations**

Recently the increases of the minimum salary for workers have made the RMG industry worry whether it can stay competitive. However, our results indicate that most factories will be able to improve their productivity with 20-30% with very little investment and effort, and in addition achieve improvements of working conditions thereby increasing worker motivation and reduce the large hidden cost for worker replacement and absenteeism.

With the strong possible benefits, it is a mystery why only few RMG factories take a strong interest in this type of integrated lean implementation. There are probably several reasons for this situation. Most factories do what they are used to do – it has worked out so far, the factories lack qualified staff to push forward, many owners believe low salaries are the key element in staying competitive, there are no traditions for involving workers, and several other explanations can probably be suggested. The consequence of these constraints is that a wider group of stakeholders need to be involved in supporting the RMG industry in the broad implementation of integrated with improvement of both productivity, quality and OHS – now enhanced with the new health requirements to prevent COVID-19.

The occupational diseases caused by corona virus can bring the complete production system in halt as evident from the present situation. It strengthens the need to find ways to keep up production at the same time as OHS and corona virus requirements are implemented. Yet, lean can also be helpful on this issue by identifying the most efficient manner to secure efficiency at the same time as applying the needed personal protective equipment (PPE).

So far there exist a diversity of activities in the society supporting development of the RMG industry. Many of these originates from the time after Rana Plaza and are focussed on pushing the industry to improve electrical, fire and building safety, but often with bias of not integrating productivity and quality as well as the ergonomics of the workstations. Upgrading these key targets is in principle left to the individual factories – sometimes supported by some of the larger brands. The consequence is that health and safety for the workers by many factories are considered a hassle, which is not contributing to the core business, and something which is only pursued to satisfy buyers and the public, thereby ending up in window dressing and doing as little as possible.

Our suggestion is to prepare integrated programmes where the key stakeholders join forces. Relevant stakeholders will at least be the industrial associations (BGMEA, BKMEA), major brands, government departments, international organisations, NGOs, unions and universities and other educational institutions. The idea is to create a support programme with multiple elements which also meets the new challenged from the Covid 19 pandemic. Key elements in such a programme includes:

- Training of middle managers, supervisors and workers in lean and OHS, including participation, problem-solving and communication.
- Integration of lean and OHS in existing programmes at universities and other educational institutions.
- Support to integrated lean transformation in individual RMG factories (advise/consultants from knowledge organisations).
- Strengthening the capacity among labour inspectors to give advice about OHS improvements which have synergies with productivity and quality.
- Preparation of promotional materials about integrated lean transformation.
- Training of labour unions in integration of collective bargaining and improvement of productivity, quality and OHS.
- Development of appropriate policies and training to assess the impact of and prevention from the corona virus while measuring OHS conditions in integration with lean methodology.
- Further studies required to assess the productivity situation of RMG industries with an effective control of the corona virus.
- Secure financial commitments between brands or buyers and supplier to keep the supplier and worker alive during global Covid 19 pandemic.

Funding could be pursued from a multi-stakeholder perspective with a combination of Government, international donors and international brands as well the beneficiaries from the RMG industry. While it may be a difficult task to prepare and launch one large programme, we suggest that stakeholder initiate smaller projects which can show the benefits of such a strategy. It can be international brands, which make collaborative project with their suppliers, universities collaborating with factories in their local areas, donors launching projects in collaboration with industrial associations or others.

Taken all together lean integrated with OHS and taking in the new COVID-19 requirements can give a strong contribution to the future economic and social sustainability of the garment industry in Bangladesh. A remarkable advantage is that implementing lean does not require new heavy investment. The main point is that the top manager takes a clear leadership role and pay his or her strong attention to the endeavour. We do hope that the stakeholders in the RMG industry grab this opportunity to secure a future sustainable development of the economic performance at the same time as securing improvement of the health and safety of worker and of their ability to provide for the livelihood of themselves and their families in the future.

## Appendix: The POHS project

The improvement of the productivity and occupational health and safety (POHS) project was implemented 2015-20 by Aalborg University, Denmark and Ahsanullah University of Science and Technology, Bangladesh (<http://pohs-bd.org/>). The project was funded by the Danish Ministry of Foreign Affairs (Danida), project no. 14-07AAU. It covered baseline studies in 50 garment factories and intensive intervention studies in 12 garment factories focussing on integrated improvement of productivity and OSH initiated by implementation of lean.

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### Key publications:

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- Hamja (2020). Lean in the Ready-Made Garment sector in Bangladesh – consequences for OHS and Productivity. PhD-thesis. Aalborg University.
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