



## **Business Innovation Facility: RCT findings from a garment factory upgrading programme in Burma**

March 2019



## Background

DFID's Business Innovation Facility (BIF) is a five-year (2014-2019), £41m market systems development and inclusive business programme that aims to improve the lives of the poor. As part of its work in Burma's garment market, BIF provided garment factories with training on productivity and human resource (HR) management. The key objectives of this intervention are shown in Figure A.

## Methodology

Fourteen<sup>1</sup> factories participated in the training programme. The effectiveness of the training was monitored through a randomised controlled trial (RCT) led by an independent academic institution, Tufts University. The study spanned 36 months, starting in January 2015.

In each factory, two production lines were selected - one was randomly assigned to be the pilot (treatment) line and one the shadow (control) line. Broadly, the improvement programme involved:

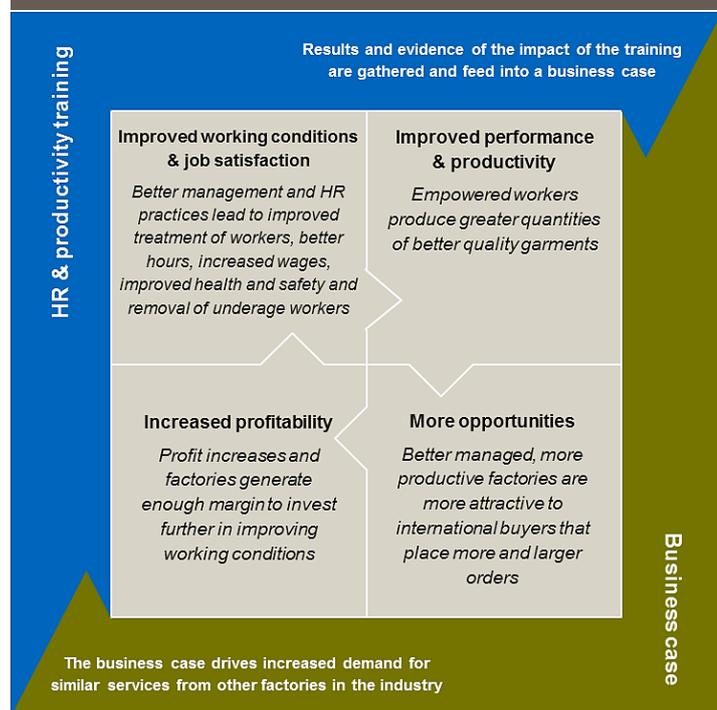
- Teaching factories to track HR and productivity key performance indicators (KPIs) including workforce turnover, cut-to-ship ratio, take-home pay, and line productivity. Tracking began several months before formal classroom training.
- Training supervisors in new production systems such as line balancing and single piece flow.
- Upskilling production line managers to improve efficiency, including using production incentives.
- Training HR managers in approaches that emphasise re-humanisation of workers, improved management of excess overtime, more transparent pay practices, and better communication.



## Purpose of this paper

This paper presents RCT findings and associated lessons learnt which are of particular interest to DFID. There is an emphasis on human development themes including job satisfaction, workplace conditions, wellbeing of workers and their families, power structures, re-humanisation of workers and child labour.

**Figure A: Strategic objectives of the training programme**



To enable comparative analysis, participating factories were randomly split into two batches – batch one received the training first. Data for analysis included KPIs from the trackers as well as survey data<sup>2</sup> from managers, supervisors and workers which was collected at four points during the project:

- Shortly before batch 1 training (baseline)
- After batch 1 and before batch 2 training (midline)
- Shortly after batch 2 training (endline 1)
- 11 months after batch 2 training (endline 2)

<sup>1</sup> There were originally 14 factories, however two factories left the study after the baseline and a further two after the midline.

<sup>2</sup> Tablet-based survey instruments were used - they were available in audio and written format, in English, Burmese and Chinese Mandarin. All responses were anonymous and confidential.

## Headline results

In the following sections, selected results, grouped by theme, are presented along with learning and recommendations that may be useful for similar programmes in the future (see text in italics). The training is considered to have been successful, with many positive outcomes emerging. At the factory level, businesses experienced substantial reductions in workforce turnover and improvements in productivity. At the individual worker level, reports indicated greater job satisfaction, enhanced communication and problem-solving, and improved mental and physical wellbeing. The training also appears to have made a difference to workers' families, with some significant findings around improved financial security and related benefits such as households acquiring more assets and being in a position to send children to school more regularly. However, it is important to recognise the complex and nuanced nature of the results and that the training also brought about some negative effects at the factory and individual worker levels.

## Productivity

The BIF training resulted in improvements in capacity and productivity. Key findings include:

- Orders increased by an estimated 86%<sup>3</sup> in the months after training, with increases also observed in the total number of garments cut and shipped.
- Before training, the average number of garments produced per worker per 8-hour day was 4.4. Treatment increased this productivity measure to 7.2 garments during treatment, and to 7.6 in the months after treatment. These effects were experienced on both the pilot and shadow lines.
- Reports from supervisors and industrial engineers indicate that the defect rate rose by approximately 18% after training, despite treatment being associated with an increase in incentive pay particularly for product quality. Three possible explanations are (i) introducing a new production system is challenging and workers may have needed more time to adjust, (ii) factories may have struggled to manage the large increases in orders, and (iii) use of trackers may have heightened awareness of defects and improved recall.
- By the second endline, training had reduced monthly workforce turnover from 9.34% to 7.38% (robust at the 1% significance level). Managers also appeared to be more alert to the challenge of workforce turnover and its impact on productivity.



*Several very positive effects on productivity were achieved from a relatively simple set of training activities. It is also notable that training of middle managers and supervisors had appreciable impact on the productivity of workers and on the attitudes of buyers. There is even evidence that introducing data trackers into a factory has a positive effect without any training. However, training also brings disruption to the factory, which causes some negative effects - these should be mitigated against in similar future programmes.*

## Pay and bonuses

The BIF training had an ambiguous effect on pay and hours, and the introduction of a national minimum wage in September 2015<sup>4</sup> made it challenging to isolate the effect of training on wages.

Workers reported hourly pay increases but analysis indicates that the increase in base pay may have been offset by a reduction in the use of pay incentives. Given that an important component of the BIF training was to encourage factories to offer productivity and quality bonuses, this resistance to incentive pay on the part of managers may have undermined the effectiveness of treatment.

Analysis of tracker data indicates that workers' hours may have increased but worker reports do not confirm this. Ultimately, this suggests that the intervention had little to no effect on workers hours. In terms of weekly take-home pay, both trackers and worker surveys indicate that this may have fallen. This should not necessarily be seen in negative terms though, as falling take-home pay may indicate reduced overtime hours and an associated reduction in premium pay.

Treatment involved improving communication around pay practices (e.g. between HR managers and workers) and this greatly decreased workers' belief that pay was confusing or unfair and made workers trust that factories would pay them their earned wage. When workers understood how their pay was calculated and felt comfortable asking questions about their pay they experienced greater job satisfaction and thought less about quitting - see Figure B.

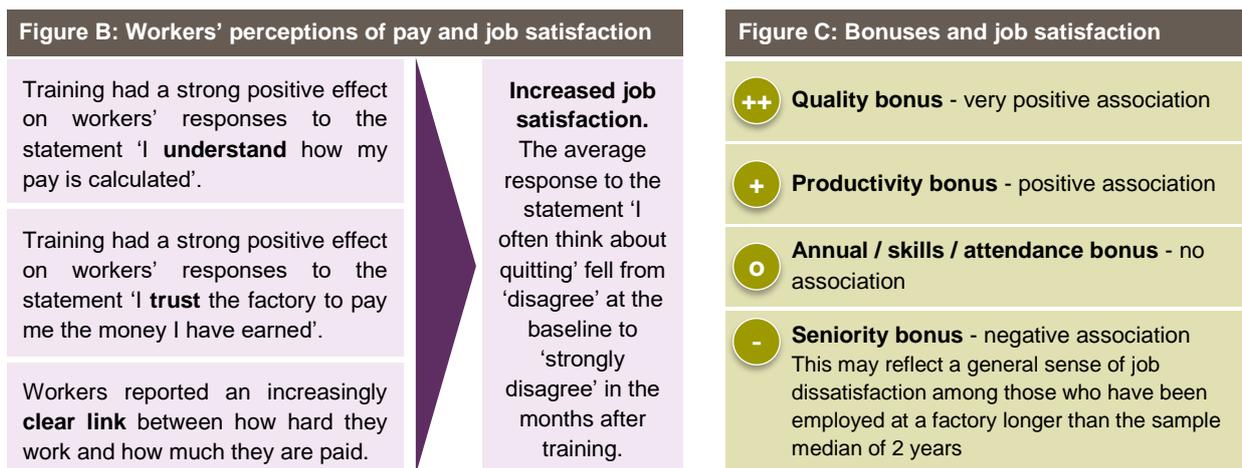
<sup>3</sup> Unless indicated otherwise, all figures quoted in this paper reflect data collected in the months after the training and are statistically significant to the 10% level or better.

<sup>4</sup> In September 2015, the Myanmar Government introduced a minimum wage of MMK 3,600 (approx. USD 2.80 at the time) for an eight-hour working day. Prior to this, reports indicated that workers earned an average base salary of MMK 2,000 (approx. USD 1.50). See: Gardener and Burnley (2015), 'Made in Myanmar' <https://www.oxfam.org/en/research/made-myanmar>



There was significant variation in the association<sup>5</sup> between the types of incentives or bonuses offered and their effect on workers' job satisfaction - see Figure C. Training also appears to have reduced perceptions that promotions are based on factors other than ability and increased perceptions that promotions are fair.

*Improving practices related to clarity of pay has deep consequence for workers. Workers who understand how their pay is calculated are more likely to trust the factory to pay as promised. Trust increases job satisfaction and improves mental health. Factories should consider the use of quality and productivity bonuses, which result in the greatest increase in worker job satisfaction and are also linked to decreases in worker turnover. Future programmes should continue to encourage workers' understanding of pay and transparency as it is both effective and important for overall worker satisfaction.*



### Workplace conditions

The training resulted in positive changes to workplace conditions, including a decline in worker concerns with dusty or polluted air and excessive noise. Worker reports on having access to adequate toilet facilities declined throughout the training, however this is likely because they became more confident voicing their opinions at work. The use of personal protective equipment in factories increased substantially and endured long after the training; average responses increased by more than two points on the scale - the equivalent of moving from 'sometimes' to 'always'.

Reporting frequent headaches, neck aches or backaches is negatively associated with a worker's overall satisfaction, as are concerns about factory noise, dusty or polluted air, excessive heat, bad chemical smells, and dirty or inaccessible toilets. Thoughts of quitting are associated with physical discomfort, dusty air, excessive heat, chemical smells and excessive noise. Conversely, providing personal protective equipment to workers on a regular basis is positively associated with job satisfaction.

*By investing in relatively low-cost improvements to the physical environment and equipment (e.g. personal protective gear, reducing noise levels, clean toilet facilities) factories can expect to experience improvements in workforce satisfaction, including making it less likely that workers think about quitting their jobs.*



### Mental and physical wellbeing

Workers consistently reported fewer instances of poor health throughout the programme. There were also fewer reported incidences of workers feeling sad or depressed, shown in an average drop of 1.5 response levels (from 'sometimes' or 'rarely' to 'never'). This strong positive effect on mental health emerged first on the pilot line and then appeared on the shadow line, indicating that the training had a factory-wide effect in terms of mental wellbeing.

Training resulted in particularly positive outcomes for workers reporting poor mental health or sickness. Training significantly mitigated the association between depression or sickness and job dissatisfaction, life dissatisfaction, and frequent lateness. For example, depression affected the job satisfaction of non-treatment workers by almost double the amount that it affected treatment workers.

<sup>5</sup> The word 'association' or 'associated' is used frequently throughout this paper. It is used to indicate that there is a statistically significant correlation between two factors as a result of the training/treatment.



*Training can improve worker wellbeing and make a particularly big difference to workers suffering from poor mental health. Training can benefit individuals, who feel more content both in their jobs and in general, and their employers who can expect to benefit from reduced lateness, absenteeism and staff turnover.*

### Wellbeing of workers and their families

In this study, family wellbeing was measured through workers' borrowing and saving behaviour and acquisition of household capital. Training resulted in a reduction in borrowing and this effect strengthened over time, indicating significant benefits on household financial security; immediately after training, around 10% of workers reported that their families had not borrowed money, while several months after training, this percentage had grown to 20.8%. There was also a positive effect on the acquisition of household assets such as indoor toilets, electricity, refrigerators and mobile phones. In addition, there appeared to be a decline in male children not in school for financial reasons.

*Training around communication and worker understanding of pay appears to have helped workers and their families to feel more confident in making financial decisions. Future programmes should consider the spill over effects of factory-level training onto household financial behaviour.*

### Organisational culture, power structures and harassment

Training had many positive effects on factory social and organisational structures and these strengthened over time, indicating that lessons were embedded in organisational culture. For instance, there were improvements in workers' confidence in their ability to produce high quality work, in voicing their opinions and in resolving potential conflicts. Training also led to increased satisfaction with the resolution of conflicts that do occur. In addition, there was a strong effect on worker reports of co-workers declining overtime, suggesting that they felt more empowered to volunteer for extra hours. On the other hand, the training seemed to widen the gap between workers' perceptions of their own power<sup>6</sup> and that of their supervisors and managers - see Figure D.

Training also appears to have temporarily exacerbated some negative behaviours. In the BIF intervention, worker reports of sexual harassment rose immediately after the training was delivered, but this increase dissipated by the endline. It is important to note that sexual harassment is an industry-wide issue that has been documented by organisations operating in the garment sector both in Myanmar<sup>7</sup> and regionally<sup>8</sup>. Research indicates that harassment as a result of entrenched gender relations is quite common (affecting around one in three female workers) but also complex to address.

BIF commissioned a separate qualitative study in non-BIF factories<sup>9</sup> to understand this issue in greater depth. The study indicated that sexual harassment does take place and is potentially widespread. Interviewees reported sexual harassment in the form of i) verbal abuse of female workers by female supervisors, and by managers towards supervisors, and ii) quid pro quo harassment, often described as 'affairs' or 'flirtations', perpetrated by men in senior positions. BIF has subsequently worked closely with development agencies, NGOs and other industry stakeholders to share learnings and support a wider response to this issue at policy, union and workplace levels.

Sexual harassment is most likely to occur when (i) there is an organisational norm tolerating harassment, (ii) there is lack of accountability of supervisor and manager decisions and (iii) workers receive discretionary pay incentives. DFID is working on mainstreaming this new understanding across its programmes.

*In the factory context, psychological and physical behaviours at the organisational, managerial and individual levels are shaped by a complex interplay of factors, including power dynamics, incentives/income and productivity. It is vital*

#### Figure D: Worker training and power

After the BIF intervention, workers were more likely to rate their managers' power higher than before. The BIF programme focussed on training supervisors and managers – it did not train workers directly. However in some cases workers had participated in other training initiatives. Results indicate that those who had received any kind of workplace training perceived managers as less powerful than those workers who had not participated in workplace training. This effect was particularly pronounced amongst workers who had received training on new work skills or focusing on worker rights and responsibilities. This suggests that workplace training can help to redress power imbalances between workers and management.

<sup>6</sup> In the course of the evaluation questionnaire, workers are shown three ladders. They are asked to put themselves on the first ladder, their supervisor on the second and their manager on the third. The rung chosen for each person indicates the amount of power they feel that they have.

<sup>7</sup> Oxfam (2015). 'Made in Myanmar: Entrenched poverty or decent jobs for garment workers?'

<sup>8</sup> CARE International (2017). 'I know I cannot quit.' The Prevalence and Productivity Cost of Sexual Harassment to the Cambodian Garment Industry'

<sup>9</sup> As survey responses were anonymous, it was not possible to investigate any specific reports of harassment, nor was this advisable in the interests of protecting workers from potential negative consequences of speaking with researchers on this sensitive topic.



*that any change initiative takes this into account at the design stage, anticipating and building in mitigation approaches to any potential unintended negative consequences. It is helpful that the industry is now alert to this risk so that future programmes can maximise benefits to workers by introducing training that actively promotes organisational intolerance of harassment and supervisor accountability for decision-making.*

### Re-humanisation of workers

There is evidence that workers were re-humanised in the minds of supervisors and that this effect became stronger in the months after training. Supervisors increased communication with workers throughout the training and also improved their understanding of workers' needs and motivations. When supervisors thought more about what they could do for their workers as opposed to the reverse, they were able to gain a better understanding of what motivates their workers. Supervisors were ultimately less likely to objectify workers and showed a more in-depth understanding of pay as an effective (but not exclusive) means of incentive. There was less pronounced evidence of increased humanisation of workers in the minds of managers. However, there was consistency in managers acknowledging that feeling comfortable at work is important for worker effectiveness and that happy workers are more productive than unhappy workers.

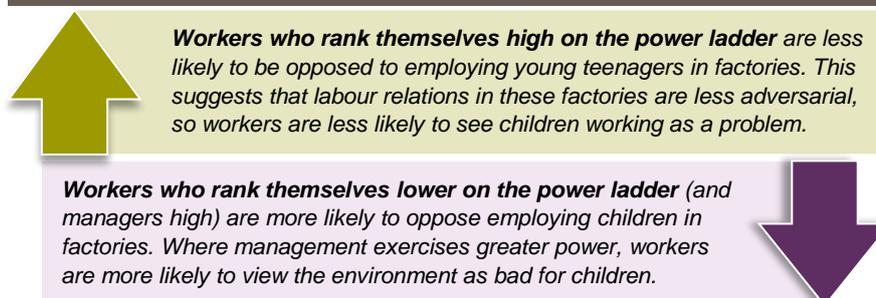
*Re-humanisation of workers is a core priority in the effort to improve welfare and job satisfaction and to redress harmful power imbalances between supervisors and workers. Targeted training for those in senior positions should be provided to support improved understanding of worker motivation and pay as part of a wider package of incentives.*

### Child labour

Managers' perceptions of child labour changed little over the course of treatment. The main issue with child labour, as perceived by managers, is the negative impact on the reputation of Burma. While the vast majority also agreed that working before the age of 16 is harmful to the child, they were more neutral concerning the impact of child labour on families. Worker attitudes toward child labour are strongly negative and there is a significant correlation between workers' views and their understanding of the factory's power hierarchy – see Figure E.

*It is important to consider why certain attitudes to child labour prevail. In this case, managers understood child labour to be negative given its impact on reputation (and likely, by extension, on opportunities for the factory to access new markets). But more analysis needs to be done to improve understanding on the intrinsic issues of child labour, both for the children themselves and for their families. Workers' level of education and sense of empowerment determine how likely they are to oppose child labour. It is important to note the inverse relationship observed between workers' empowerment and opposition to child labour. Similar workplace upgrading programmes should take proactive steps to mitigate against any improvements fuelling perceptions that the workplace is an acceptable environment for children.*

**Figure E: Factory hierarchy and worker attitudes towards child labour**



### DFID Management Response

DFID is pleased to have supported this important and rigorous piece of research. It offers valuable evidence on the positive impact that workplace training can have on business productivity, job satisfaction and worker welfare. However, it has also highlighted some of the negative behaviours prevalent in ready-made garment factories, notably sexual harassment. DFID takes these issues incredibly seriously and has undertaken the following actions in response to these findings:

- DFID has supported Tufts University to carry out further research on the findings relating to sexual harassment and to make recommendations on how this can be addressed in future interventions.
- DFID has shared this report - and further work on the prevalence of sexual harassment in garment factories - with other DFID-funded programmes in the ready-made garment sector in order for the recommended actions to be implemented.
- DFID has flagged these findings with the DFID Safeguarding Unit to integrate into organisational learning and response to issues of sexual harassment in all parts of our work.



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