World Environment Center

SGMW Project Analysis

Background

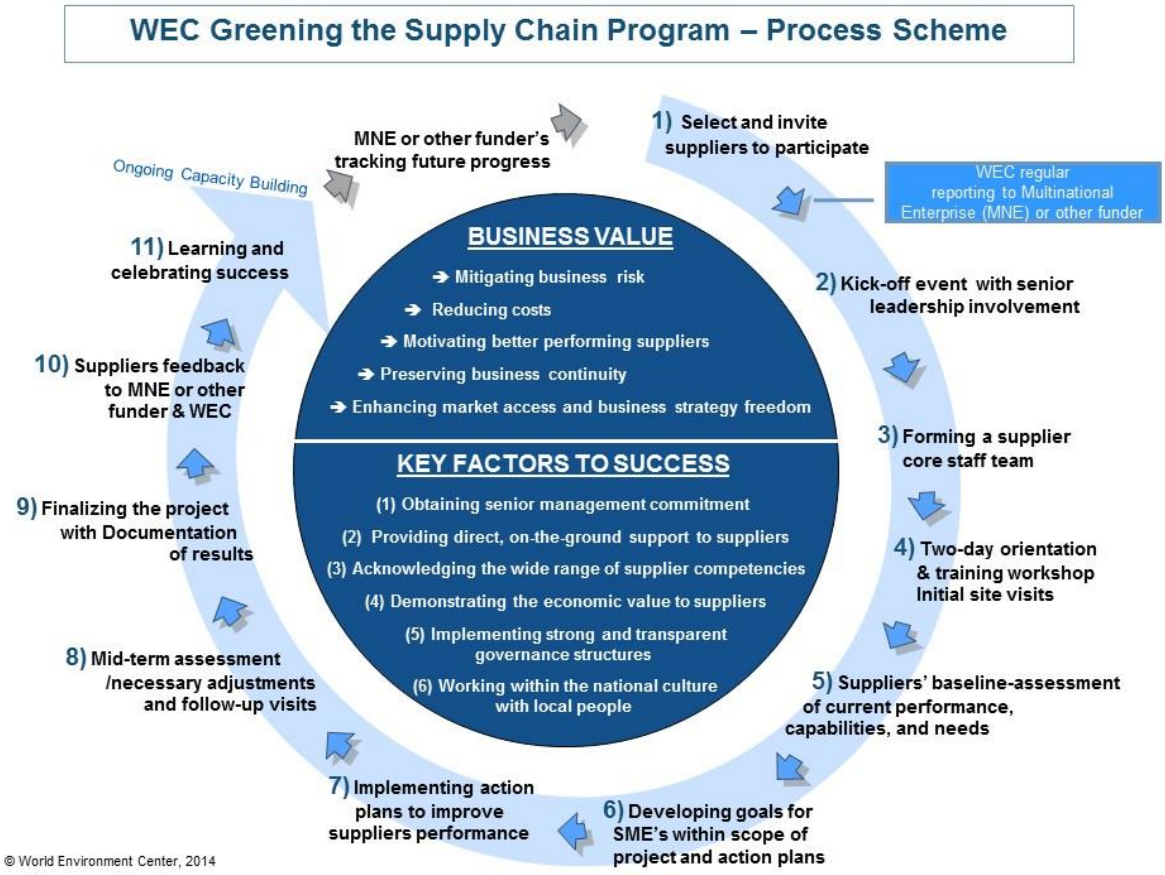
In 2011 as part of GM China's Drive to Green Strategy SGMW undertook their Greening the Supply Chain (GSC) initiative in partnership with WEC. The goal of the initiative was to improve the environmental performance and energy efficiency of their Tier 1 suppliers by providing cleaner production and energy efficiency technology, training and direct support. The initial phase of the initiative was a five supplier pilot project designed to demonstrate the efficacy of the WEC developed GSC process. Based on the results of the pilot, in 2013 SGMW expanded the initiative to include 21 additional suppliers and two SGMW plants. The original pilot project suppliers participated as part of a second phase of the project called Continuous Improvement. The 2013 edition of the GSC Initiative was completed in April of 2014.

The WEC GSC Process

The GSC process, shown below in Figure 1, was developed by WEC based on projects conducted in Brazil, Mexico, Central America, and Romania, among other countries, across several industry sectors. It was refined for the automotive sector in partnership with GM subsidiaries in China and Australia.

The start-up costs associated with developing and customizing the GSC Process and training modules for SGMW, as well as conducting the one day training workshop is $70,000. The training consists of a number of modules addressing the following: an introduction to the GSC process and its management systems approach; basic concepts of improving energy efficiency and environmental performance; energy and environmental self audits and establishment of baselines; assessment of improvement opportunities and selection criteria; materials, energy, water, and cost savings; and reporting of results. The training workshop is supplemented by additional training as part of the on-site visits. With the training modules and structure of the workshop now developed, the expense of replicating this phase of the project has diminished considerably.

Figure 1



Results

A total of 108 improvement options were identified and implemented by the 25 participating suppliers and two SGMW plants, resulting in the benefits listed below:

<u>Reductions</u>

- Electricity - 20,400,000 kWh/a
- Compressed Air - 63,500 m3/a
- Natural Gas - 480,000 m3/a
- Water - 56,100 t/a
- Steam -17,200 t/a
- Waste Gas -12,000,000 m3/a
- Waste Water - 37,800t/a
- Greenhouse Gas Emissions -20,400 t/a

Economic Benefits

- Capital investment of 37,433,000 RMB
- Annual return on investment of 36,969,000 RMB
- Most projects have a payback period of about one year.

Consistent with what we have seen in previous work for GM in China, energy reduction projects represented the vast majority (70 percent) of overall projects completed and also as expected from previous experience, 85 percent of equipment related projects addressed energy reduction. The focus on energy projects is likely the result of relatively good and rapid returns on investments and the Government initiatives promoting energy use reductions. The next highest project category was material savings which represented 13 percent of overall projects.

Key Learnings

Of the success factors listed in the attached figure the most critical are:

- Senior management commitment and direct support by both SGMW and the suppliers. This support was demonstrated by SGMW by directly engaging the participating suppliers and urging full participation. The suppliers demonstrated commitment by providing the resources both human and capital to complete the improvement projects.
- Providing both environmental and economic results. By reducing operational and input costs, the suppliers see the direct benefit of their participation in the activities, and are incentivized to continue.
- Providing training and direct on-the-ground support to suppliers was necessary, as most suppliers did not have the technical and managerial skills necessary to successfully carry out the project.
- Conducting a mid-term review to accurately assess supplier performance was instrumental in directing our follow-up support actions in the most effective manner.