TrainERGY project

Good practice - Template

Date:	
Place:	

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1 Introduction

1.1 Good practice definition

Good practice is a method or technique that has been generally accepted as superior to any alternatives. It has been proven to work well and produce good results[1].

1.2 Good practice criteria

The following set of criteria to determine a 'good practice':

- ***Effective and successful***
  A good practice has proven its strategic relevance as the most effective way to achieve a specific objective; it has been successfully adopted and has had a positive impact on individuals and/or communities.
- ***Environmentally, economically and socially sustainable***
  A good practice meets current needs, in particular the essential ones of the world's poorest, without compromising the ability to address future needs.
- ***Technically feasible***
  Technical feasibility is the basis of a good practice. It must be easy to learn and implement.
- ***Inherently participatory***
  Participatory approaches are essential, as they support a joint sense of ownership of decisions and actions.
- ***Replicable and adaptable***
  A good practice should have the potential for replication and should therefore be adaptable to similar objectives in varying situations.
- ***Reducing disaster/crisis risks, if applicable***
  A good practice contributes to disaster/crisis risk reduction for resilience.

[1] Nash, J. and Ehrenfeld, J., (1997), "Codes of environmental management practice: assessing their potential as a tool for change." Annual Review of Energy and the Environment 22, pp. 487-535; Bretschneider, S., Marc-Aurele, F.J., Jr., and Wu, J. (2005), "Best Practices" Research: A methodological guide for the perplexed, Journal of Public Administration Research and Theory , (15) 2, pp. 307-323.

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2 Good practice description

2.1 Objective

This document proposes the good practice that should be considered by *Partenopei* International Ltd (PIL). The good practice emphasized in this document is the technologies used in scrap steel recycling.

2.2 Introduction

Main product of PIL is Steel Ingot. Steel Ingot is a semi solid material that used in a steelmaking process industry. PIL produced by using the Electric Arc Furnace (EAF) process technology. Each year, PIL is able to produce 2 million tonnes of steel ingot. PIL buys scrap iron from two main suppliers in Surrey and Edinburgh, in total 2.4 million tonnes scrap per year. In order to produce 1kg of steel, PIL has utilized 1.2 kg of scrap which at the end producing slag and steam water. Based on the secondary data analysis, it is argued that the slag produced during the steel making process is higher than the steam water. Hence, this document proposes PIL to refine their scrap selection process to reduce the amount of slag disposal at the end of steel making process. To proceed with feasible and robust scrap selection process, the assistance of technology is needed. By adopting scrap sorting technology (we propose XRF Analyzers and Induction Sorting System (ISS) Machine), PIL will be able to reduce the amount of slag waste by analysing the impurities in the scrap metal. The reduction of impurities in the scrap will directly reduce the amount of slag produced at the end of steel making process.

2.3 Actors and Stakeholders

To proceed with the adoption of this technology, we have identified three stakeholders that will be involved in the entire process which are:

1. The focal firm (PIL) - The technology will be adopted by PIL in collaboration with the suppliers.
2. Suppliers (Surrey) – The technology will be sited at the supplier's site.
3. Machine Contractor (Steinert Global & Bruker) - These companies are responsible in supplying the scrap sorting machine.

2.4 Methodological approach

This good practise is based on the buyer-supplier relationship. By enhancing suppliers' capabilities to produce higher quality of scrap, the focal firm is able to increase the amount of steel production. However, this practise requires mutual agreement from both parties. The focal firm is responsible to influence the supplier to use the technology.

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2.5 Validation

The validation process of this technology adoption can be explained in threefold. First, once the technology is adopted and used by the supplier, the supplier needs to produce a report on the quality of the scrap based on the impurity level. Second, the focal firm will produce a new report on new scrap sources based on the amount of slag disposal. Finally, both report will be periodically (monthly) reviewed by the management (from both parties) to illustrate the actual picture of the implementation.

2.6 Results/outputs

Product efficiency – steel produced is a high quality and amount produced can be increased. The amount of slag disposed can be reduced.
A good relationship between supplier and focal firm can be formed and beneficial, especially in a long-term period. It will enhance the performance of both parties (focal firm and supplier).

2.7 Impact

The new supply chain practices will be mapped into the Scenati to examine the impact of the practice on the carbon emissions. It is argued that by reducing slag disposal, the carbon emission will reduce significantly. This practice will also improve the supplier performance, in which lead to a higher performance of the entire supply chain.

2.8 Success factors

The success factors of this technology adoption are explained as follows:

1. Focal firm - The focal firm shall influence and educate the supplier to adopt this technology in order to produce high quality product and concern on environmental sustainability.
2. Supplier - The commitment of the suppliers is crucial in order to ensure that this technology investment is considered and implemented in their organization. Without commitment from the supplier, the realization of this technique will not be executed.
3. Government – Encouragement and enforcement by the local government are needed to ensure the success of this green practise. By introducing and enforcing green manufacturing policy, the businesses should invest in any technology to ensure adherence to the policy and to avoid conflict with the local government.
4. Customer / Non-Government Organization – Green and sustainability issues will normally receive the attention from the businesses whenever there is a significant force from the stakeholders, especially the customers.

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2.9 Constraints

The constraints of this technology adoption are:

1. Cost – The cost of the machine is relatively expensive and the SMEs might not afford to invest to this technology without long-term agreement and contract with the focal firm. However, the cost of this technology will be covered by the focal firm.
2. Supplier's Commitment - The supplier's understanding on the green, sustainable and good practise is necessary for the realization of this technology adoption and success. Thus, proper training shall be held between the focal firm and suppliers.
3. Focal Firm's Support – Focal firm's continuous support and monitoring are crucial as this practise will benefit both parties in the long run. Focal firm should ensure the supplier is consistently adhered to the agreement and at the same time, periodically maintain and sustain the machine.

2.10 Lessons learned

Scrap metal is 100% recyclable. From the technological aspect, a better waste management can be handle properly by reducing the amount of slag disposed can be reduced. A better grade of steels also can be produced. Besides, the production level is improving time by time concurrently reduced the carbon emission which directly enhance the better environment in the future. Technology evolve from time to time, which this invention can be enhanced. Even though the lay back of this technology is not financially friendly, but having continuous research activities would improvise this aspect in the future.

2.11 Sustainability

Sustainable impacts of this technology adoption can be explained in threefold. First, environment will be sustained as the slag waste is reduced during the new steel making process, which lead to lower slag disposal. Second, the new practise will lead to economy sustainability in which the cost will be reduced in the long-term and the steel quality will be improved. Third, it will lead also to social sustainability where the focal firm is not only focusing on their benefits but also improve their supplier's capabilities and performance.

2.12 Demonstration

https://youtu.be/z4kii-xnZDg

2.13 Related website(s) / resources

http://www.steinertglobal.com/de/en/products/sensor-sorting/steinert-iss-induction-sorting-system/

https://www.bruker.com/products/x-ray-diffraction-and-elemental-analysis/handheld-xrf/s1-titan-series/detector-shield/detector-shield.html

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