

TrainERGY project

Good practice – KPI usage by Bogdanka S.A.

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Training for Energy Efficient Operations - TrainERGY

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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 results¹.

1.2 Good practice criteria

The following set of criteria will help you to determine whether a practice is 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.

2 Good practice description

Bogdanka company uses a broad scope of indicators to measure and monitor its performance. The diversity of indicators is crucial for communication activities with all the interest groups, defined by the company. All the KPIs used by the company are well-developed. Although the indicators are complex, their definition is explained in detail (in the report), which makes the KPI understandable and easier to be measured.

2.1 Objective

The main aim of the document is presentation of the best practices, sourced from the Polish enterprise in the area of Key Performance Indicators. The area of the good practice are solutions for green performance measurement, monitoring and improvement. Major scope of information is sourced from Bogdanka S.A. reports.

Lubelski Węgiel Bogdanka S.A. ("LW Bogdanka") is not only one of the leading hard coal producers in Poland, but also a leader of innovation and efficiency in the national mining sector. For many years it has been proving that coal mining is not doomed to permanent losses, but instead it may generate profits, create new jobs and contribute to development of its region. LW Bogdanka stands out from its sector at many levels: financial results, implementation of innovative solutions, hard coal extraction efficiency and investment plans to start new deposits. Currently, it is the only coal mine in Poland located outside Upper Silesia and the only one extracting coal in the Lublin Coal Basin. It is a stable and reliable company, focused on long-term goals. It is a company free of perennial conflicts and disputes – a company where understandings have been reached for years by way of constructive dialogue, without putting the continuity of excavation operations in jeopardy. It is also a safe mine with one of the lowest accident figures in the Polish hard coal mining industry. And, above all, the mine generates relatively low mining damage costs and only minor environmental costs, despite its location. Finally, LW Bogdanka is a company which is continuously searching for new solutions, optimising its processes and maintaining its costs at a reasonable level, which enables it to excavate coal efficiently even in difficult times for hard coal mining.

LW Bogdanka mainly supplies power coal, which accounts for about 95% of sales revenue earned by the whole Group. Power coal is mainly used by power plants, cogen plants, cement plants and chemical

plants. For that reason, the customers of the Company are primarily leading industrial companies, mainly those located in eastern and north-eastern Poland. These include ENEA Group's Elektrownia Kozienice S.A. (about a 40% share in revenue), Elektrownia Połaniec S.A. from GDF SUEZ Group (7%), ENERGA Elektrownie Ostrołęka S.A. (15%) and PGNiG Termika S.A. (13%). Other coal buyers include Grupa Ożarów S.A., Grupa Azoty Zakłady Azotowe Puławy S.A. and PGE Polska Grupa Energetyczna S.A. It is worth noting that as much as 92% of coal sales have been realised under long-term contracts.

In recent years, i.e. 2013 and 2014, certain in-house functions of the mine were spun-off and are now performed by special-purpose subsidiaries, wholly owned by LW Bogdanka. EkoTRANS BOGDANKA Sp. z o.o., established in 2013, provides waste management services to the mine to utilise waste generated in the course of coal shale washing and purifying, and more specifically waste transportation and logistics services. RG Bogdanka sp. z o.o., also established in 2013, provides services and supplies to and performs mining and building works for LW Bogdanka. And the youngest subsidiary, MR Bogdanka Sp. z o.o., established in 2014, performs repairs and refurbishments on the ground, including the regeneration and manufacturing of steel structures. This company, too, provides its services to LW Bogdanka. As the above operations were previously carried out by the mine itself, the organisational transformation has not significantly changed the environmental impact of LW Bogdanka.

2.2 Introduction

Enclosed Report is a second report prepared by LW Bogdanka in accordance with the Global Reporting Initiative (GRI) guidelines. The key differences versus the previous report, published last year for the period 2012-2013, include: (i) this Report is an annual report for 2014; and (ii) it is no longer limited to a nonfinancial report, but it constitutes an integrated report combining both financial and nonfinancial performance. As the previous report, this Report has been prepared 'in accordance' with GRI G4 in 'core' option, but, in addition, using the International Integrated Reporting ("IR") Framework.

The good practice may be implemented not only to the companies which are working in the area of coal mining or those, which are somehow forced for reporting, but also for those which hope to improve their performance, also in the field of green solutions.

The implementation of the KPI is a necessity for each company. Even if the results of the performance measurement cannot be compared "on the spot", the implementation of their measurement is crucial for understanding the company's situation. There is no specific set of indicators which may present the situation of a company totally. The implementation is possible always when the monitoring of the company's situation monitoring is required for its improvement. The main aim of KPI implementation is creation of possibilities for company's performance improvement and continuous evaluation of its results.

2.3 Actors and Stakeholders

The beneficiaries of the good practice may be all the companies considering the improvement possibilities, especially in the aspect of green economy. The users of the good practice are the companies. Their size, scope of activities and profile are irrelevant for implementation itself. The only element that need to be adjusted, is the scope of KPIs monitored. The main actors are companies responsible for good practice implementation. The stakeholders groups are being defined while the measures are defined and conducted.

2.4 Methodological approach

The procedures of KPI implementation consists of a following steps [Brockett and Zabihollah, 2012]:

- a. Definition of all processes within the company
- b. Defining the points of environmental aspects, related to legal, economical or technical context of the processes
- c. Creation the KPI measurement procedure (including the measurement points/aspects)
- d. Implementation of the measurement (defined or not defined in the legal regulations, technical procedures and environmental ones)

There are a few sources of information and methodology for KPI definition and implementation. They are sourced in strategic management methodologies related to KPI definition or EMAS directive. The gender aspects can be addressed in the gender parity performance indicator, employment by age group and gender (including own and supervised employees); return to work and retention rates after parental leave by gender; composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.

2.5 Validation

The managers are satisfied with the good practice implementation, concerning Bogdanka Company. It is proven by a statement of Mr Zbigniew Stopa (President of the Management Board in Bogdanka S.A.) presented on the yearly report. The validation and usage of the reports depends on the scope of KPI presentation and communication.

2.6 Results/outputs

The company wants to use the KPIs in order to find out the problems in the area of environment, employment and social part of the company's activities. Similarly, it gives the possibility of process improvement, especially in the field of green technologies.

2.7 Impact

Each company that wishes to implement the KPIs hopes to improve the efficiency and effectiveness of processes. The impact is not reduced to monitoring only, but it may be a broad basis for further

development of detailed measures which can update the company's policy. The monitoring itself may be a basis for more conscious resources consumption and optimization of the company's activities.

2.8 Success factors

The main element for distinguishing the good practice is the uniqueness of the company profile and its awareness in the field of KPIs. The engagement of the management is crucial for implementing measures of activity. The resources (financial and know-how) are also necessary to formulate and implement the measurement system of the company. Social and environmental aspects, especially in the context of global challenges are the forces influencing and stimulating KPI implementation.

2.9 Constraints

The basic challenge is usage of the resources in an efficient way. The engagement of managers and employees in measurement of the indicators constantly and effectively is needed for the good practice implementation.

The greatest trap is identification of too many indicators without ability of their further processing. Instability or poor calibration of the systems are those elements influencing highly further results of the KPIs. The crucial element is to set measurements which are measurable. At the same time, monitoring itself is not an ending point of optimization journey. Some companies stop their activities at analysis only, without changing their actions. Bogdanka S.A. is a good example of optimization of processes and activities at the basis of yearly reports, which are made with usage of all KPIs.

2.10 Lessons learned

The key messages and lessons learned:

- a. Measurement of the activities can improve the performance of the company
- b. Introducing the KPI can help to find and solve problems within processes, similarly as improve their results
- c. The big variety of KPIs helps to present the complex situation in a reasonable way
- d. Measurement of the company's activity is necessary for creating financial and non-financial reports

2.11 Sustainability

In KPIs definition the sustainability issue may be concerned the crucial element. The diversity of dimensions of KPI's scope may influence the company's sustainability in general.

The costs of KPI implementation are related mainly to technology adjustment and personal training of the employees. The other cost is related to evaluation of products and processes.

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2.12 Demonstration

There are some examples of KPI from Annual Report:

[G4-EN5] Efektywność energetyczna LW Bogdanka (wzrost wydobywania, przeróbka i transport węgla, z wyłączeniem produkcji ceramiki EkoLINKIER)

Energy intensity of LW Bogdanka (coal extraction, processing and transport, excluding production of EkoLINKIER ceramics)

			2013	2014
Energia zużywana w procesach produkcyjnych w przeliczeniu na tonę węgla	Energy consumed in production processes calculated per 1 tonne of coal	[GJ/t] (MJ/kg)	0,145	0,141
w tym energia elektryczna zużywana w procesach produkcyjnych w przeliczeniu na tonę węgla	including electric energy consumed in production processes calculated per 1 tonne of coal	[GJ/t] (MJ/kg)	0,114	0,113

[G4-EN22] Wolumen odprowadzanych ścieków /Volume of discharged sewage water

			2013	2014
Ścieki (wody dołowe) odprowadzone przez LW Bogdanka (oczyszczalnia mechaniczna – zbiornik wód dołowych)	Sewage water (mine water) discharged by LW Bogdanka (mechanical treatment – mine water tank)	[1 000 m ³]	5 628,8	5 485,9
Ścieki komunalne odprowadzone przez Łęczyńską Energetykę Sp. z o.o. (oczyszczalnia mechaniczno- biologiczna)	Communal sewage water discharged by Łęczyńska Energetyka Sp. z o.o. (mechanical and biological treatment)	[1 000 m ³]	182,0	203,6
Ścieki deszczowe odprowadzone przez Łęczyńską Energetykę Sp. z o.o.	Rain sewage water discharged by Łęczyńska Energetyka Sp. z o.o.	[1 000 m ³]	373,9	373,9

			j.m.	2013	2014
Pośrednia i bezpośrednia emisja CO ₂ związana z procesami produkcyjnymi w przeliczeniu na tonę węgla (LW Bogdanka z wyłączeniem produkcji ceramiki budowlanej)	Indirect and direct CO ₂ emissions connected with production processes per 1 tonne of coal (LW Bogdanka excluding building ceramics production)	[tony CO ₂ /tony węgla] [tonnes of CO ₂ /tonnes of coal]		0,02172	0,02168
Całkowita emisja pośrednia i bezpośrednia CO ₂ w przeliczeniu na przychody (GK LW Bogdanka)	Total indirect and direct CO ₂ emissions per revenue (GK LW Bogdanka)	[tony CO ₂ / tys. zł.] [tonnes of CO ₂ / PLN'000]		0,12392	0,12220

The full report, which is the best demonstration of best practice implementation, is available on the Internet page: <http://ri.lw.com.pl/czytaj-aktualnosc/2511/lw-bogdanka-opublikowala-raport-zintegrowany-za-2014/>.

2.13 Related website(s) / resources

Ahi P., Searcy C., (2015), An analysis of metrics used to measure performance in green and sustainable supply chains, Journal of Cleaner Production, Volume 86

Baldarelli M.G., Del Baldo M., Nesheva-Kiosseva N. (2017), Environmental Accounting and Reporting. Theory and Practice, Springer, Cham

Bhardwaj A., Chandna P., Sharma V.K., (2017), Green supply chain management related performance indicators in agro industry: A review, Journal of Cleaner Production, Volume 141

Brockett A., Zabihollah R. (2012) Corporate Sustainability. Integrating Performance and Reporting, John Wiley & Sons, Hoboken

Chae B., (2009), Developing key performance indicators for supply chain: an industry perspective, Supply Chain Management: An International Journal, Vol. 14 Issue: 6

Diener J., (2015), Key Performance Indicators. A Useful Tool for CSR Reporting. GRIN Verlag

Gemechu E., Pillain B., Sonnemann G., (2017), Measuring the implementation of ecodesign management practices: A review and consolidation of process-oriented performance indicators Original, Journal of Cleaner Production, Volume 156

Hani Y., Kafa N., Mhamedi A., (2013), Sustainability Performance Measurement for Green Supply Chain Management, IFAC Proceedings Volumes, Volume 46, Issue 24

Herrmann Ch., Li W., Kara S., Kornfeld B., Schmidt Ch., Thiede S., (2016), Implementing Key Performance Indicators for Energy Efficiency in Manufacturing, Procedia CIRP, Volume 57

Knura M., (2013), Companies and Environmental Impact: Identification and Visualisation of Key Ecological Indicators, Ciplomica Verlag, Hamburg

Lowellyane J. (2015) Sustainability Footprints in SMEs. Strategy and Case Studies for Entrepreneurs and Small Business, John Wiley and Sons, Hoboken

Lulewicz-Sas A., (2015), Pomiar i ocena społecznie odpowiedzialnej działalności przedsiębiorstw – wyniki badań [Measurement and Evaluation of Socially Responsible Business Activities - Research Results], Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu, Nr 378

Marcinkowska, M., (2012), Rachunkowość społeczna – czyli o pomiarze wyników przedsiębiorstw w kontekście oczekiwań interesariuszy [Social accounting" - or how to measure companies' performance in the context of stakeholders' expectations], Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, no. 271, Wydawnictwo UE, Wrocław

Margolis J.D., Walsh J.P. , (2001), People and profits? The search for a link between a company's social and financial performance, Lawrence Erlbaum Associates, Mahwah, NJ.

Peloza J., (2009), The Challenge of Measuring Financial Impacts From Investments in Corporate Social Performance. Journal of Management, Vol. 35(6)

Waniak-Michalak H., (2017), Comparability of information on socially responsible activity of companies reporting according to GRI standards, Zeszyty Teoretyczne Rachunkowości, Vol. 91 (147)

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