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INTERNATIONAL ECONOMIC RELATIONS AND SUSTAINABLE DEVELOPMENT

МІЖНАРОДНІ ЕКОНОМІЧНІ ВІДНОСИНИ ТА СТАЛИЙ РОЗВИТОК

MIĘDZYNARODOWE STOSUNKI GOSPODARCZE I ZRÓWNOWAŻONY ROZWÓJ

МЕЖДУНАРОДНЫЕ ЭКОНОМИЧЕСКИЕ ОТНОШЕНИЯ И УСТОЙЧИВОЕ РАЗВИТИЕ

Матеріали
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Authors also pay attention for the substrate preparation to lead to the intensification of the methane fermentation, with application for post treated biomass as eco-friendly fertilizer. In particular we will focus on the lignocellulosic biomass preparation, going through physical, chemical and biological methods. In all countries methods of physical grinding down are coming out to the first plan, with the steam explosion being a technique at the front.

LIFE CYCLE ASSESSMENT (LCA) OF ENERGY SAVING MEASURES IN BUILDINGS

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The energy sector itself poses great challenges for most countries, especially with the present financial and environmental circumstances and the need to enhance economic development while meeting climate change goals.

2015 was a pivotal year in addressing climate change, with the adoption of the Sendai Framework for Disaster Risk Reduction, the 2030 Agenda for Sustainable Development and the Paris Agreement COP21. Now, in order to ensure successful implementation of national agendas and reach goals, it is crucial to conduct significant changes in the buildings.

The sector of residential and public buildings heating has one of the largest potentials for improving energy efficiency in Ukraine. The annual consumption of natural gas for heating purposes is estimated at 18.6 billion m^3 with the reduction potential of 11.4 billion m^3 of gas per year in case that Ukraine will reach EU standards in the resource efficiency in buildings (Miregion, 2016).

Solution of the problems related to a building heating requires the attraction of significant investments. But energy saving and environmental performance still appears irrelevant to investors. The provision of information about energy efficiency in Ukraine has been increasing for the last years, but has not resulted in significant increase of investments.

Financial gain alone is not always enough to drive investments in building energy efficiency. Decisions for significant works on buildings refurbishment are often motivated by numerous factors, including improvement in comfort and adaptation to the global challenges (GABC, 2016).

Current assessment of investment projects in energy saving in Ukraine does not really take into account environmental impacts. Also there is no standard monetary valuation method to calculate environmental costs

(also referred to as "external costs" or "shadow costs"). This can not only reduce the transparency of the studies, but also make the results uncertain and subjective, preventing the comparison of the results for Ukrainian and international investors.

To measure environmental and social impacts of the project in units other than monetary (e.g. eco-points) can be applied comparative Life-Cycle Analysis.

LCA is a tool for quantifying the environmental performance of products taking into account the complete life cycle, starting from the production of raw materials to the final disposal of the products, including material recycling if needed.

The most important applications for an LCA are:

• Identification of improvement opportunities through identifying environmental hot spots in the life cycle of a product.

• Analysis of the contribution of the life cycle stages to the overall environmental load, usually with the objective of prioritizing improvements on products or processes.

• Comparison between products for internal or external communication, and as a basis for environmental product declarations.

• The basis for standardized metrics and the identification of Key Performance Indicators used in companies for life cycle management and decision support.

An LCA study consists of four main phases:

Step 1: Defining the goal and scope of the study.

Step 2: Making a model of the product life cycle with all the environmental inputs and outputs. This data collection effort is usually referred to as life cycle inventory (LCI).

Step 3: Understanding the environmental relevance of all the inputs and outputs. This is referred to as life cycle impact assessment (LCIA).

Step 4: The interpretation of the study (PRé, 2016).

LCA provides the quantitative and scientific basis for to evaluate the efficiency of the energy saving measures from environmental prospective.

Energy efficiency of buildings is a global problem. Investing in renovation of existing buildings provides excellent opportunities for an effective reduction of energy consumption and greenhouse gas emissions. This can help us to achieve the Sustainable Development Goals and to reduce climate change risk in line with the Paris Agreement. But investments have to be attractive and feasible in present financial, social and environmental conditions in Ukraine. That is why evaluation of obtained life cycle environmental is essential for environmentally-sound decision-making.