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# Center for Climate Change

Brief information on activities implemented by Center for Climate Change



## Contents

1. Brief information .....	3
Mission and Vision of Center for Climate Change (CCC).....	3
2. Project activities.....	3
2.1. TRANSBOUNDARY AIR POLLUTION HEALTH INDEX DEVELOPMENT AND IMPLEMENTATION (TRAP).....	4
2.2. TOGETHER FOR BETTER ENVIRONMENT AT MUNICIPALITY OF KARPOSH 5	
2.3. DEVELOPMENT OF A CHAPTER “CONSTRAINTS AND GAPS, AND RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS” WITHIN THE SECOND BIENNIAL UPDATE REPORT (SBUR) ON CLIMATE CHANGE .....	6
2.4. CROSS-BORDER PARTNERSHIP FOR ENVIRONMENTAL PROTECTION AND BETTER QUALITY OF LIFE (WASTE EDU) .....	7
2.5. SUPPORT CROSS BORDER ENTREPRENEURSHIP/TRANSNATIONAL BUSINESS CONSULTANT (SCBE-TBC).....	8
2.6. INCREASED PARTICIPATION OF THE CIVIL SOCIETY IN THE PROCESS OF ENVIRONMENTAL DECISION MAKING.....	9
2.7. WEEE CREATES POSSIBILITIES.....	9
2.8. PROMOTION WASTE MANAGEMENT AND ENERGY EFFICIENCY PRACTICES IN THE CROSS BORDER REGION (PWM-EE).....	10
2.9. INDUSTRIAL POLLUTION AND PREVENTION CONTROL IN MACEDONIA – IPPC IN MACEDONIA .....	10
2.10. IMPROVING ENERGY MANAGEMENT AT MACEDONIAN INDUSTRY (IEM) 11	
2.11. STRENGTHENING CAPACITIES FOR MINISTRY OF ENVIRONMENT AND PHYSICAL PLANNING FOR IPPC AND HAZARDOUS WASTE MANAGEMENT (HWM).....	12
2.12. CLEANER AND MORE COST-EFFECTIVE INDUSTRY IN MACEDONIA (CCEI)13	
2.12.1. Energy Efficiency Projects developed under CCEI programme .....	13
2.13. BUILDING LOCAL EXPERTISE IN CLIMATE PROJECT DEVELOPMENT (CDM) .....	15
2.14. REPLACEMENT OF FOSSIL FUELS WITH GRAPE RESIDUES IN MUNICIPALITY OF KAVADARCI FOR REDUCING GHG EMISSIONS .....	15
2.15. TEMPUS DEREL Project.....	16
3. OTHER COMPETENCE.....	16

4. REGIONAL AND INTERNATIONAL COOPERATION..... 16

## 1. Brief information

### Mission and Vision of Center for Climate Change (CCC)

NGO “Center for Climate Changes” (CCC) was established in late 2007 and officially registered in January 2008, as non – government, non – religious, non – political, and non – profit organization.

**The mission of CCC** is to protect environment and implement activities combating climate changes and improving the environment. The main aims of the Center for Climate Change are:

- Support industry in improving their energy and environmental performance
- Raising public awareness about Climate Change and undertaking initiatives for combating climate change
- Suggesting measures for improving and amendment the legal framework in the field of Energy, Climate Change and Environment
- Strengthening the capacities of the local and national level, and so to the industry capacities for developing climate change related projects and improve environmental performances
- Promoting and supporting environmental governance, energy and environmental management.

**CCC’s vision is** to make low carbonated community and environmental responsible society. In order to achieve this CCC is directing its activities towards industrial energy efficiency, industrial pollution and prevention control, waste management, climate change mitigation and adaptation measures and energy and environmental management.

CCC was established by people who have extensive experience in climate change, environment management and protection, who want to share their experience to others and support central and local authorities in establishing good governance in environment, particularly in combating climate change and promoting energy efficiency and renewable energy.

Center for Climate Change is officially registered in Gevgelija, Republic of Macedonia, and has its branch offices in Skopje, Gevgelija and Ohrid. Main aim of the branch offices is improving the current situation on regional level in regards to industrial pollution and risk prevention, climate change mitigation and environmental protection. The ultimate goal is reducing the negative impact on the environment on local and regional level.

## 2. Project activities

Below are listed and elaborated some of our main activities implemented within the projects granted by different donors. The projects are emphasizing competencies where CCC has the best experience and knowledge.

## 2.1. TRANSBOUNDARY AIR POLLUTION HEALTH INDEX DEVELOPMENT AND IMPLEMENTATION (TRAP)

Through TRAP project partners will improve management and protection of areas at both countries by establishing air quality monitoring networks. The measurements of all stations in areas involved in this project will create a system that will display real-time measurements through the internet. Moreover, epidemiological indicators and indicators of air quality, based on the effects of air pollution on human health, will be calculated and displayed on the project's website. The best way for someone to use an Air Pollution Health Indicator (APHI) is to regularly check the current index value, to pay attention to personal symptoms and self-calibrate to the reported current APHI value. Strategic objective of TRAP project is the creation of an ICT application integrating Air Quality Monitoring with Air Pollution Health Indicator (APHI) in CB area.

### **The specific sub-objectives of the project are to:**

- Develop and evaluate emission inventories at partners areas
- Assess the health risk related to air quality measurements
- Create integrated ICT tool including air quality information correlated to possible health impacts and providing emergency mechanism to policy makers and vulnerable groups.
- Evaluate the CB conditions regarding air quality and transported pollution in CB area
- Engage relevant stakeholders in order to inform them on the created tool operation and indexes
- Disseminate and communicate the project results to key stakeholders as well as to the general public and vulnerable groups.

### **Expected results:**

TRAP results will positively affect and contribute to the programmes result indicator for ecosystems with improved protection status for the eligible areas of Florina, Axlada, Bitola and Gevgelija where the monitoring stations will be placed.

The innovative character of TRAP is served by its approach that favors the interaction and exchange of ideas as well as the knowledge diffusion and integration among the targeted stakeholders. Many of the projects activities will be jointly implemented creating unified frameworks for problem resolutions and providing added value to the CB area as a total.

The expected results are focused on the development of an ICT tool for better air quality monitoring in CB area integrated with Air Pollution Health Indicator.

### **More specifically TRAP direct and immediate results include:**

- Permanent transnational network established among partners
- Target groups reached through communication means within project areas
- Improved air quality monitoring mechanisms to CB area
- Demonstration of integrated ICT tool for air quality and health indicator
- Skilled personnel of monitoring authorities
- Promotion and dissemination of air quality and health models
- Raise awareness on the relation of air quality and public health
- Gathered data on air quality and public health
- Contribution to the harmonization with EU directives regarding ambient air quality
- Accelerate IPA accession

**Project duration:** 24 months (03.08.2018-03.08.2020)

**Financed by:** European Union through the INTERREG IPA CBC Greece – Macedonia 2014-2020

## 2.2. INCREASE INNOVATIVE BUSINESS IN SEA, ENVIRONMENT & AGRICULTURE AND IT

**The main scope** of the proposed project is the creation of a pre-Incubator in the areas that will be involved in the project for the hosting of new innovative entrepreneurs in order to exploit the infrastructure, the characteristics and the advantages of the cross border area.

**The project's general target** is the enhancement of the entrepreneurship in the cross-border area. This general target, in order to be succeeded, is separated in sub-objectives corresponding directly to its actions. Particularly, the proposed project aims at the establishing of new individual, enterprises in the field of sea, agriculture and environment and at the enhancement of the existing ones. In order to achieve this objective, it targets to an effective professional training and consulting - mentoring of its target group among entrepreneurial issues with the aim to offer them a qualified background, so that they participate in future in the incubator body that will be prepared during the project. The establishment of new enterprises and the reinforcement of the existing ones are connected directly to the other project's objectives, the unemployment decrease and the creation of new job positions.

Through the proposed project it is scheduled to be created employment opportunities by exploiting comparative advantages of the cross border area as are the sea, the agriculture and the environment, preferably with the use of innovative tools and practices as are the IT technologies. The proposed project's long-term objective is to create a Incubator in each area which will be oriented to a particular field that is recognized in each area (marine, agriculture, environment) and to create a Network among these incubators. This will be a very strong asset for the entrepreneurship of the cross border area and it is scheduled to boost the local professions in each area and to enhance the opportunities of the young entrepreneurs with the use of IT technologies in traditional occupations as marine & agriculture professions.

**The expected results are:**

- Development of the entrepreneurship and creation of synergies
- New jobs' creation and reduction of immigration
- Promotion of Innovation
- Increase of competitiveness and extroversion
- Exploitation of local human resources (new scientists)

**Project duration:** 09.05.2018-09.11.2019

## 2.3. TOGETHER FOR BETTER ENVIRONMENT AT MUNICIPALITY OF KARPOSH

The project is implemented by Center for Climate Change in cooperation with Municipality of Karposh and is subgranted within the project "Joint Forces for Common Interests", financed by the European Union, IPA Programme for Civil Society and Media 2014.

**Main aim** of the project is increased participation of the civil society in the process of participative democracy.

**Specific aims are:**

- Increased cooperation among civil society and local self-government through implementation of joint actions and activities
- Increased number of jointly conducted actions among citizens and municipality in order improving environment, human health and safety in the Municipality of Karposh

**The activities are distributed over 4 components:**

- ✓ Conducting research for environmental conditions and citizens health in the Municipality of Karposh and setting up Municipality priority
- ✓ Establishing joint working group for efficient resolving of the joint problems in the environment
- ✓ Conducting 3 joint activities for improving environmental conditions and human health
- ✓ Conducting raising awareness campaign for environmental protection and traffic safety

**Expected results from project implementation:**

- Improved environmental quality
- Improved safety and better life quality and human health
- Increased and improved cooperation among civil society and Municipality

**Project duration:** 6 months

## **2.4. DEVELOPMENT OF A CHAPTER “CONSTRAINTS AND GAPS, AND RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS” WITHIN THE SECOND BIENNIAL UPDATE REPORT (SBUR) ON CLIMATE CHANGE**

The main aim of the project is to assist the country in mainstreaming and integration of climate change consideration into national and sectoral development policies by providing continuity to the institutional and technical capacity strengthening process, partly initiated and sustained by the National Communications and the First Biennial Update Report on Climate Change (FBUR). As per the United Nations Framework Convention on Climate Change (UNFCCC) guidelines, the BURs should also provide updated information on financial resources, technology transfer, capacity-building and technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current biennial update report.

CCC was responsible for providing updated information on financial resources (international and national), technology transfer, capacity-building and technical support relevant to climate change for the period 2014-2016 that shall serve as relevant chapter for the SBUR.

Main responsibilities:

- To review the relevant chapter of the [First BUR, recommendations from the technical revision of the First BUR](#), and [latest UNFCCC guidelines for preparation of BURs](#);
- Identify data gaps and inconsistencies, and possible reasons for the data gaps and inconsistencies;
- Identify additional relevant national data sources and databases which can be utilized for the needs of the BURs preparation;
- Propose method(s) that will improve collection of data and information on national resources allocated for climate change;

- Review the state and budgets of the local governments, identify relevant budget lines that can be used for climate finance reporting, and prepare a summary of the financial information (state and local levels);
- Develop a questionnaire for data collection on climate change 1) Technology Gaps/Needs; 2) Capacity Gaps/Needs and 3) Financial Gaps/Needs (initial template shall be provided by the project office);
- Support climate change data collection, questionnaire distribution and analyze the results;
- Identify relevant climate change project implemented by NGOs and other entities (e.g. Chamber of Commerce members, private sector) and provide summary of financial allocations per sectors/entities;
- Take stock of the technical support received from the Global Environment Facility, the Green Climate Fund and multilateral institutions for activities relating to climate change (type of projects and financial support received);
- Compile and analyze the collected data for climate change activities implemented in the country for the period 2014 - 2016 (to the extent possible):
  - Climate change finance from international and from national sources – governmental budget, local budget, private funding etc.
  - Financial, technical and capacity-building support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities related to climate change;
  - Information on constraints and gaps, and related financial, technical and capacity-building needs (on national and local level);
  - Information on technology needs, which must be nationally determined, and on technology support received;
  - Technology, financial and capacity needs for implementation of mitigation actions **on local level assessed.**

**Project duration:** May – October 2017

Financed by: United Nations Development Programme, Country in Macedonia

## 2.5. CROSS-BORDER PARTNERSHIP FOR ENVIRONMENTAL PROTECTION AND BETTER QUALITY OF LIFE (WASTE EDU)



Main aim of the WasteEDU project is to increase both the level of awareness and knowledge of the project target groups and stakeholders for environment protection by promoting actions related to waste management, reducing and recycling waste.

### **Specific objectives:**

- To establish an integrated approach in support of environmental education and community driven actions for removal of illegal dump sites and pollution prevention
- To improve the awareness and raise the interest on topics such as environmental protection, waste prevention and recycling

- To address common issues and deficiencies related to waste management education and awareness about waste selection and recycling in educational institutions in the cross-border region of BG and MK
- To foster the active participation of young people on issues related to environmental protection

**Expected results:**

- Implemented wide information and promotional campaign among educational institutions on the territory of the cross-border region in BG and MK;
- Increased interest of young people towards the issues related to waste reducing, recycling and prevention;
- Improved awareness and knowledge of younger generations on the topics concerning environmental protection, waste prevention and recycling;
- Fostered direct involvement and participation of young people in environmental protection campaigns;
- Fostered experience and best practices exchange between various stakeholders related to environmental education of the cross-border area in BG and MK.

This project is co-funded by European Union through the Interreg - IPA CBC Programme Bulgaria - The former Yugoslav Republic of Macedonia 2014-2020.

**Project web site:** [www.waste-edu.eu](http://www.waste-edu.eu)

**Project duration:** 15 months (18.10.2016 – 18.01.2018)

**Project partner:** Alliance of the Producers of Ecological Energy-BG, Republic of Bulgaria

**2.6. SUPPORT CROSS BORDER  
ENTREPRENEURSHIP/TRANSNATIONAL BUSINESS  
CONSULTANT (SCBE-TBC)**



The project's general target is the enhancement of the entrepreneurship in the cross-border area of Florina-Ohrid-Thessaloniki. This general target, in order to be succeeded, is separated in sub-objectives corresponding directly to its actions. Particularly, the project aims at the establishing of new individual, social and "green" enterprises and at the enhancement of the existing ones. In order to achieve this objective, it targets to an effective professional training and consulting – mentoring of its target group among entrepreneurial issues with the aim to offer them a qualified background, so that the unemployed to be able to set up their own enterprises and the existing entrepreneurs to be able to manage all their problems improving and developing their enterprises. The establishment of new enterprises and the reinforcement of the existing ones are connected directly to the other project's objectives, the unemployment decrease and the creation of new job positions.

Through the authentication-certification of the business plans which shall be hammered out and the authentication-certification of the new enterprises, the project achieves one more of its objectives which is the enhancement of the entrepreneurial competitiveness. Because its objective is not just the establishment of new enterprises but these new enterprises to be authorized and certified, attaching them with competitive advantage. The project's long-term objective is to continue to support its target group even after the funding's end and to enhance the cooperation between the cross-border areas in issues of socio-economic policies. This means that it aims at the awareness of the governments' authorities among their populations' problems and acquaints them with economic and effective methods for their support. So, it's obvious that the project does not focus on an only just target, but its objectives are various with a long-term duration.



**Project duration:** 07.06.2016-07.12.2017 (18 months)

**Project partners:** Municipality of Ohrid, Republic of Macedonia and Greek Association of IT, Telecom Applications and New Technologies Companies, Hellenic Management Association, and Technopolis from Greece.

The project is funded by the European Union and National Fund of the participating countries under the IPA Cross Border Cooperation Programme "Greece – Macedonia" 2007-2013  
Project web site: [www.scbe-tbc.eu](http://www.scbe-tbc.eu)

## 2.7. INCREASED PARTICIPATION OF THE CIVIL SOCIETY IN THE PROCESS OF ENVIRONMENTAL DECISION MAKING

**Overall objective** of the project is to increase the involvement of citizen organization in decision - making process in the field of environment on local level. The aim is to strengthen the awareness of the citizen organization for issues that are related with environment in order to increase the involvement in creating social change in terms of good governance and decision – making at local level.

**The specific objective** of the project refers to improvement of the collaboration between civil society and local government units which are working in the field of environment. The improved collaboration between civil society and local government units should contribute to achieving the overall objective and is inseparable process from the process of including the public in decision – making process.

**The activities that are planned to be conducted** in order to achieve the overall and specific objective are referring to investigation of the current situation and preparation of a study for the needs of civil society and local government units, as well as building the capacities and strengthening public awareness with main aim higher public involvement. Also, in the frame of the project, action plans for public involvement will be prepared together with the local government units and citizen organizations, and subsequently public events or common actions will be organized together with the local government units for different topics related to environment.

Parallel with the common actions, the informal network for environment will commence and public involvement in order to monitor and to inform the citizens about environmental activities and their greater involvement in decision - making process.

Center for climate change continuously will inform target groups and wider public about project events, conducted and planned activities, as well the progress of the project about bigger collaboration and involvement of civil society in decision - making process.

**Project duration:** 01.07.2016 - 31.12.2017 (18 months)

## 2.8. WEEE CREATES POSSIBILITIES

In July 2015, Center for Climate Change, received a Grant from the United States Embassy in Macedonia and started to work on the project for raising public awareness for proper WEEE management (waste from electrical and electronic equipment) in Macedonia. In particular, highlight is given on the need for separate collection of WEEE in order to influence the behavior of end users of EEE products. The project is focusing on children in primary schools by working on the increase of awareness and also establishing competitive spirit by awarding the schools (400 \$-first, 300\$-second and 200 \$-third prize) that will collect highest quantity of



obsolete small domestic appliances (phones, mixers, blenders, etc.). The collection of WEEE is organized by placing WEEE containers in 15 primary schools across the country and organizing the collection and measurement by licensed company. The competition part is fostered by a comprehensive campaign, involving communication materials and presentations focused on: waste hierarchy; manufacture and use of EEE; negative environmental and health impact of improper WEEE management; effective recycling of WEEE and the economic and environmental benefits of it; importance of sorting and separate collection of WEEE. The project will last one year and official closure is envisaged with the ending of the school year in 2016.

## 2.9. PROMOTION WASTE MANAGEMENT AND ENERGY EFFICIENCY PRACTICES IN THE CROSS BORDER REGION (PWM-EE)



In November 2014, Center for Climate Change Skopje, Branch Office Gevgelija has signed the contract for implementation of the project **“Promotion Waste Management and Energy Efficiency Practices in the Cross Border Region”**, funded under the IPA Programme for

Cross Border Cooperation Macedonia – Bulgaria, with duration of 1 year.

The project is implemented together with Bulgarian Association of ecological energy from Blagoevgrad, with main aim to promote energy efficiency and environmental activities in small and medium enterprises (SMEs) in the cross border region, in order reducing the negative impact from their economic activities.

As part of the project it is envisaged to be implemented following activities:

- ✓ Developing a joint study for SMEs from the Cross Border Region
- ✓ Developing data base for companies active in cross border region
- ✓ Capacity building programme for pollution prevention - Trainings for energy and waste management
- ✓ Round table discussions on exchanging experiences in the cross border region
- ✓ Developing studies for resource management and pollution prevention, 10 in total
- ✓ Developing and printing Manual for waste management
- ✓ Developing web portal for business community
- ✓ Public awareness campaign for increasing awareness about negative environmental and climate change impact from production processes of the active companies in the cross border region



The project focuses on the Southeast region of Macedonia and region of Blagoevgrad, Bulgaria and responsible organization for its implementation is the Branch Office “Center for Climate Change” – Gevgelija.

IPA Cross Border Programme  
CCI Number: 2007CB16IPO007

## 2.10. INDUSTRIAL POLLUTION AND PREVENTION CONTROL IN MACEDONIA – IPPC IN MACEDONIA

IPPC project aims to improve management of industrial emissions by adjusting legislative framework and increasing the environmental competence in authorities, non-governmental organizations and industry.

The project started with its implementation in September 2013 and it is planned to last until September 2016. This project focuses on making the IPPC work in the Ministry of Environment and Physical Planning in Macedonia more efficient, and the cooperation climate with the industry better. The project activities are within the National Plan for Adoption of the Acquis Communautaire 2012 for Macedonia.

The project will provide capacity building to IPPC stakeholders; environmental authorities, local industry (with main focus on energy and metallurgy sector) and civil society represented by non-governmental organizations. Capacity building will be done in form of workshops, intended to provide an arena for discussion, networking and knowledge sharing between representatives within each stakeholder group.

Technical assistance for writing of new or revising of already issued permits will be provided to the IPPC unit. The industrial sites chosen as cases will be determined in the inception phase of the project. Assistance will be provided for preparation of at least 2 IPPC permits, in order to increase the capacity of the staff writing permits.



## 2.11. IMPROVING ENERGY MANAGEMENT AT MACEDONIAN INDUSTRY (IEM)



In December 2013, Center for Climate Change started with implementation of the new project “Improving Energy Management at Macedonian Industry”.

The project is implemented by Center for Climate Change-Skopje, supported by Energy Agency of Republic of Macedonia, Faculty of Mechanical Engineering in Skopje and Economic Chamber of Commerce under technical supervision of Norwegian company Norsk Energi.

The project is going to provide technical support for introducing of better energy management practices at Macedonian food processing industry and will assist at implementation of the energy management standard ISO 50001:2011 at several companies.

Realization of the project will result in improving energy performances at Macedonian industry, enhancing their capacities in order reducing energy consumption and easier identification of energy saving measures.

Introducing better management practices on long term will result at reducing the production expenses and increased competitiveness of Macedonian companies at domestic and foreign markets. On the other side improved practices are going to reduce emission of greenhouse gasses, contributing for better compliance with European legislation and improving the quality of life in the country.

Apart from the industry the project envisage involving young engineers and students from technical universities on activities related to training and introduction of energy management practices, which will build their capacities and will motivate them for providing similar services in the future.

**Project results:**

Here are some of the results from the audits conducted in participating companies:

**1. Bucen Kozjak, Kumanovo, Factory for Dairy products**

- Introduction of energy management system;
- Installation of solar panels for low temperature water production;
- improving insulation at administrative building and reducing electricity consumption.

**2. Magroni DOO, Skopje, Company for mineral water and juices**

- Better insulation of the pipelines in the whole factory site,
- optimization of the boilers and utilization of the waste heat for heating purposes,
- improved energy management and better evidence of the spent energy,
- Installation of measuring devices.

**3. Blagoj Gjorev, Veles, Factory for sunflower oil processing**

- Improved boiler efficiency,
- Installation of measuring devices,
- Improving and installation of proper insulation

**4. CD Fruit Resen, Factory for juice concentrate production**

- Chemical preparation of the load water for the boiler plant,
- optimization of the work of the boiler,
- insulation and measuring devices

**5. Geplastic Gevgelija, Factory for plastic packaging for food industry**

- More efficient heating of the administrative building,
- Changing of the work regime of the plants with electrical engines and reducing the electricity consumption.
- Introducing Energy Management System is also implemented in this company

**6. Makprogres (Vincini), Vinica, Factory for confectionery products**

- Measuring and monitoring of the electricity consumption;
- More efficient cooling in the summer period and installation of solar panels for low temperature water for sanitation needs.
- Introducing Energy Management System is also implemented in this company

**7. Evropa AD Skopje, Factory for confectionery products**

- Improving insulation,
- Putting measuring devices and improving management practices (evidence of energy consumption, water and other raw materials)

## **2.12. STRENGTHENING CAPACITIES FOR MINISTRY OF ENVIRONMENT AND PHYSICAL PLANNING FOR IPPC AND HAZARDOUS WASTE MANAGEMENT (HWM)**

In September 2010, Center for Climate Change and Norsk Energi started to work on another three year programme “Strengthening Capacities for Ministry of Environment for Integrated Pollution and Prevention Control and Hazardous Waste Management”. The programme consists of two separate components:

*Component 1 –Integrated Pollution and Prevention Control (IPPC)* will address both the imminent need for assistance regarding the issuing of IPPC adjustment permits to Macedonian industry, and securing the long term technical capacity in the governmental institutions to perform IPPC related tasks and issuing IPPC permits in accordance with IPPC Directive and future EU related integrated pollution directives, in particular the emission control directive.

*Component 2 (HAZARDOUS WASTE)* will focus on the hazardous waste problem that is evident in Macedonia. By using the National Waste Management Strategy 2008-2020 as a starting point the project aims to map locations, amounts and types of hazardous waste at existing storage sites. Another key element in this component is to map and systemize industry that are generating hazardous waste as a result of their daily operations; including characterization of types, volumes and assessment of treatment systems.

## 2.13. CLEANER AND MORE COST-EFFECTIVE INDUSTRY IN MACEDONIA (CCEI)

### CCEI

Cleaner and more cost effective industry in Macedonia

Starting from June 2009 Center for Climate Change and Norsk Energi were working on a programme “Cleaner and More Cost Effective Industry in Macedonia” –CCEI a three year programme funded by Norwegian Ministry of Foreign Affairs. The project addressed barriers to project implementation by building local competence, increasing awareness, developing a pipeline of climate projects ready for financing, as well as improving the dialogue between the authorities, academia, project developers, industry and financial institutions. The project had three components: Energy Efficiency, Environmental Management Systems and Student Exchange.

**Project outcomes:** 13 studies for energy efficiency in 3 year period developed, implemented EMS at 4 companies, conducted student exchange at 2010 for 2 students, obtained student internship for 4 students at 2011, improved dialogue among ministries, relevant institutions, international finance institutions, municipalities, universities, increased local capacities among young engineers in developing EE studies and providing consultancy, raised awareness for implementing energy saving measures.

### 2.13.1. Energy Efficiency Projects developed under CCEI programme

#### 2.13.1.1 Study on carbon footprint reduction for Socotab AD Bitola

The scope of work includes preliminary audit of the boiler house, steam, hot water and condensate systems; HVAC, chillers and chilled water system; compressors and compressed air system, pumping system and lighting system. The analysis completed leads to a general conclusion that during the design, selection and procurement of equipment, as well as during the installation phase, it was striving to implement the best practices for energy efficiency.

#### 2.13.1.2. Possibilities for waste heat recovery from technology process in Vardar Dolomite – Gostivar

The objective of the work was to identify and assess the possibilities for utilization of waste heat of exhaust gas from the shaft kilns in Vardar Dolomite – Gostivar. It was found that there is a relatively

large amount of heat contained in the exhaust gases of the shaft kilns. Five different options were analyzed as possible ways for recovery of exhaust gas waste heat.

#### *2.13.1.3. Potentials for utilization of waste energy in Skopski Leguri, Skopje*

For this company study on energy recovery options was developed. This study identifies many options for utilization of waste energy which implementation will lead towards reduction of CO<sub>2</sub> emission of around 35150 t annually.

#### *2.13.1.4. Replacement fossil fuels with grape residues in Municipality of Kavadarci*

The aim of the pilot project described in this pre-feasibility study is to replace fossil-fuel based heating with heating based on biomass waste from vine pruning in a public school in Municipality of Kavadarci, and this way assess the potential of a wider use of waste biomass generated by the wine industry, for heating purposes. It is estimated that the volume of biomass generated in the pruning season in Kavadarci, which today is treated as waste, is sufficient to cover the heating demand in all public buildings in the municipality.

#### *2.13.1.5. Efficiency in energy supply in OHIS AD Skopje*

The report concludes that the efficiency of the boiler is between 63-73%, and the efficiency of the steam-condensate system is assessed at 50-55 %. The potential for energy savings is considerable. The feasibility of proposed energy saving measures depends on future development of the industrial complex AD OHIS.

#### *2.13.1.6. Cooling tower modernization in TPP Bitola*

The report concludes that this replacement will lower the cooling water temperature, and thereby improve the overall efficiency of the power plant from 30,93 % to 31,12 %. The investment is estimated of up to 10 mil. EUR. The reduction of CO<sub>2</sub> emissions will be about 25000 tons per year.

#### *2.13.1.7. District heating with thermal energy from TPP Bitola*

This study is focusing on analysis of possibilities for district heating of Bitola and the neighboring municipalities Novaci and Mogila, by use of thermal energy from the Thermal Power Plant Bitola, as well as on analysis of effects and benefits that would be achieved by implementation of such project. Total investment for this project is 40 mil EUR and income is estimated to 14 mil EUR.

#### *2.13.1.8. New greenhouses supplied with waste energy from TPP Bitola*

The aim of this report was to assess the potential for using low temperature waste heat from REK Bitola to heat new greenhouses in the vicinity of the power plant. It was concluded quickly that the temperature of the cooling water at REK Bitola is not sufficiently high cover the need on greenhouse businesses. However the study provide useful input to potential future development of district heating system in the region based on heat produced at REK Bitola.

#### *2.13.1.9. Pre-feasibility study on feasible options for improvement of the energy efficiency and energy saving in the MZT Wabtec, Skopje*

The scope of the audit and assessment focus in the framework of the energy assessment activities were: department for mechanical processing, forging and welding department and the department for surface protection. There were a number of energy efficiency improvements and energy saving options generated and even though some of them were in certain phase of implementation, still there was a huge potential for more savings in this company. Cost effective assessment estimated around 100.000 EUR savings annually.

#### *2.13.1.10. Energy efficiency and potentials for WHR in Jugochrome Ferroalloys – Jegunovce*

This is the biggest energy consumption company in Macedonia, where the following EE options were identified:

- Flue gases dust trap (and selling);
- Flue gases waste heat recovery;
- Minimization of the dust generation in the production process.

Only utilization of energy contained in flue gases will lead to approximately 6 mil EUR saving/year.

#### *2.13.1.11. Identifying energy efficiency measures in boiler plant at University Clinical Center – Skopje*

The focus areas within the CP project were the boiler plant; namely, water treatment, production and transportation of steam and hot water; condensate return; as well as the efficiency of operation/function of certain parts of the energy facilities in the Clinical Centre.

The main objectives obtained with implementation of this measure are: improvement of combustion efficiency to reduce fuel consumption and reduction of the emission

#### *2.13.1.12. Energy Efficiency in Karpos Factory, Skopje*

There are plenty of energy efficiency measures identifying in this company, where most of them are directly related with the energy management, generation and use (steam, compressed air, electricity etc.) in technology processes and for space heating, but some of them are primarily related to the materials handling and some with organisational issues.

Benefits for the company are high and are related to less fuel and energy consumption and less emissions. Payback period is estimated as very short.

#### *2.13.1.13. Cleaner Production report for Teteks Yarn – Tetovo*

The goal of this initial analysis was to give an overview of possible cleaner production options at the company Teteks Yarn, as well as to recommend possible options for improvement. In general, there are two options for increasing the energy efficiency in the technological processes performed in the company Teteks Yarn, where option I is to build up new Teteks Yarn production facility, completely independent, and option II, to revitalise and modernise the existing Teteks Yarn facilities.

## **2.14. BUILDING LOCAL EXPERTISE IN CLIMATE PROJECT DEVELOPMENT (CDM)**

Since October 2008, CCC in cooperation with Norsk Energi realized the programme “Building Local Expertise in Climate Projects Development” with duration from October 2008- September 2009. Within this programme several workshops were organized with main aim on project development, training of DNA associated experts, PIN and PDD preparation from where are arisen and identified 4 potential CDM projects. Additional outcome of the programme is increased awareness of business opportunities within climate projects, initiation of project identification, long list of project ideas, several PINs prepared, increased knowledge of CDM concept and PDD development among stakeholders and local experts, and at the end as higher achievement increased chances for Macedonia to enjoy long term benefits of CDM project implementation.

**Project outcomes:** Strengthened capacities for developing CDM projects on national level, increased awareness for CDM and its importance, 11 Project Idea Notes (PIN) developed, 4 Project Design Documents (PDD) Developed

## **2.15. REPLACEMENT OF FOSSIL FUELS WITH GRAPE RESIDUES IN MUNICIPALITY OF KAVADARCI FOR REDUCING GHG EMISSIONS**

The Center is partner with Municipality of Kavadarci and main aim of the project is changing common practice of the local people instead burning grape residues utilization for heating in schools. As Pilot project is taken Gimnasium Dobri Daskalov, where one of the boilers will be replaced with boiler working on grape residues. As a part of this project, CCC is doing continuing efforts to implement this project, so now laboratory examinations on the potential of fuel utilization are planned to be conducted.

### **2.16. TEMPUS DEREL Project**

NGO" Center for Climate Change" as a project partner to Faculty of Mechanical Engineering implemented the project which was financed by the European Commission.

Project main objective is implementation of the Bologna process into the DEREL Partner Countries higher educational system and establishing of sustainable regional DEREL Network. Specific objectives are developing new, up to date postgraduate curricula in Environment and Resource Engineering at the Cyril and Methodius University in Skopje, University of Novi Sad and Polytechnic University of Tirana based on European Credit Transfer System and in accordance with Bologna Process, following the criteria for setting up a Joint Postgraduate Degree.

## **3. OTHER COMPETENCE**

Aim to strengthen the capacity since the beginning, CCC has team of five people that represent the core of the organization, good cooperation with many professionals and consultants in the field of energy and environment that are engaged in the CCC activities. Most of the CCC staff has licenses as EIA Experts, SEA Expert and Waste Managers certified by the Ministry of Environment and Physical Planning. One of the CCC staff is also certified External Certified EMAS Auditor.

CCC was engaged in giving trainings for environmental impact assessment, preparation of elaborates for protection of environment, drafting of IPPC permits and waste management programs. CCC staff was involved in activities related to introduction of eco-labeling in Macedonia, drafting criteria for eco-labeling for tourist accommodation, furniture and textile and public awareness campaign for eco-labeling. In addition CCC staff participated in preparation of Environmental Local Action Plans for many municipalities and in preparation of the Strategic Impact Assessment reports.

CCC staff was involved in preparation of many feasibility studies, national programmes and strategic documents for the Republic of Macedonia in the field of waste management, environmental protection and industrial pollution. In regards to drafting the legislation, CCC was involved in drafting the national legislation and sub legislation for environment, waste management, water and air.

CCC has also strong cooperation with technical universities from the country and countries from the region. We have broad roster of experts encompassing different subjects and competencies that are available for joining our team when needed.

## **4. REGIONAL AND INTERNATIONAL COOPERATION**



Center for Climate Change, has also very good regional cooperation with many different institutions and organizations working in the field of climate change impact to underground waters, forests, fire prevention and biodiversity.

Since 2014, CCC is part of the Environment and Climate Forum (ECF), within the ECRAN network, funded by European Commission and implemented from Consortium led by Human Dynamics Austria. <http://www.ecranetwork.org/ECF/Member-NGOs>

Starting from 2009, Center for Climate Change is local project coordinator for Norsk Energi projects that are being implemented in Macedonia.

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### Contact us

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