

## RESULTS AND FINDINGS OF THE SUMMER RESEARCH CAMP ON ENERGY AND CLIMATE – KUPA 2001

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### ***Abstract***

“Summer Research Camp on Energy and Climate – Kupa 2001” was a part of the first phase of the Project called “Sustainable Future for the Kupa Valley”. Eko Liburnia implemented the Project in collaboration with NGOs SE-F and Vitra (Slovenia) and OVE (Denmark). The Project area included six municipalities on both sides of the river Kupa, which represents historical natural border between Croatia and Slovenia.

The Camp was conducted from 6<sup>th</sup>-15<sup>th</sup> July, 2001 with the main objectives being: data collection on energy culture using the door-to-door survey method and raising of the environmental awareness among local population. The survey’s main tool was a standardised Project questionnaire including eight different sections: general personal data; knowledge of the community; characteristics of the residential building; present way of heating the building; potential wooden biomass supply; existing environmental awareness; division of jobs within the family; and personal interest in participating in the Project. The outcome was 430 filled-in questionnaires, creating Project area database to be used in future activities. Finally, 77% of the interviewed households have expressed their wish to participate in the following Project’s phases.

**Key words:** *wooden biomass, door-to-door survey, socio-economic aspects*

## **BACKGROUND**

From the 1<sup>st</sup> of July 2001 to 31<sup>st</sup> of January 2002, Eko Liburnia implemented the first phase of the Project titled “Sustainable Future for the Kupa Valley” in collaboration with NGOs Slovenski E-Forum and Vitra from Slovenia and OVE from Denmark.

The Project area includes the wider area of upper stream of Kupa River and its tributary, Čabranka River, which represent the historical natural border between Croatia and Slovenia. The municipalities comprised with the Project area are municipalities of Osilnica, Kočevje, Kostel and Črnomelj on the Slovenian and municipalities and towns, respectively, of Čabar, Delnice, Brod Moravice and Vrbovsko on the Croatian bank of the Kupa River.

The main aim of the Project is promotion of the efficient use of energy and renewable energy sources among the local population, with special emphasis on the use of the wooden biomass due to the Project Area natural characteristics (70% of forest and woodlands).

The idea was to use wooden biomass as a tool for local development from economic, social and environmental aspects. The idea rose due to the following facts of the Project area:

- The main industry of the area was traditionally based on wood (sawmills, furniture, fire wood, parquet and other wood processing industry).
- Pitfalls of transition and privatisation led to closing and/or shrinkage in production of the industry, which caused high level of unemployment.
- Remained wood industry is mainly harvesting high quality wood for export as raw material.
- Private and mainly small-scale but illegal harvesting woods for heating.
- Moving out, ageing and impoverishment of the local population.
- Uncontrolled and rapid choking with rank vegetation of agricultural areas (arable lands, pastures, orchards).
- Due to the low level of industry, the area has almost intact biodiversity and rare virgin forest that represent solid ground for development of green entrepreneurship.
- Large environmental risk caused by the increasing traffic of tank lorries carrying fossil fuel.

Therefore, the Project’s mission is establishment of the awareness on the relationship between the need of mankind to protect the global climate and the need for recovering the local/regional economy based on the sustainable principles on the one hand, and cross-border cooperation among municipalities, NGOs and business sector on the other hand. The aim is to reach the “win-win” possibilities through establishing cross-border network which will be connected to global networks promoting ecology (climate) friendly technologies, management and financing. Furthermore, the aims are:

- Increasing the knowledge on the importance of the sustainable forestry and cross-border rules on environmental protection.
- To show and promote EE as economically viable solution;
- Disseminate information on various advanced technologies on bio-fuels production based on wooden biomass (wooden chips, briquettes);
- Raise awareness on necessity of public participation as a pre-term for successful implementation;
- Transfer of know-how on the organisation of local/regional market;
- Set up the basis for the other cross-border activities oriented towards sustainable development, such as ecotourism, organic agriculture...

At the first phase, Project activities included: summer research camp, six open-to-public lectures (EE and RES, Every House - the Sun House, Organic Agriculture and Ecotourism on Farms, Green Entrepreneurship, RES and Climate Protection, EE and RES at Slovenian Households), two expert workshops for local decision-makers and study trip to Denmark (green accounting and eco-schools).

The present state of the Project is stand-by with a promise from the local decision makers on both sides of the Kupa to meet again in the near future.

## SUMMER RESEARCH CAMP ON ENERGY AND CLIMATE – KUPA 2001

Summer Research Camp on Energy and Climate (SRCEC) – Kupa 2001 was held from 6<sup>th</sup> to 15<sup>th</sup> of July 2001. It was volunteering by 21 students (mainly students of Anthropology and Engineering from Slovenia) and coordinated by SE-F, Vitra and Eko Liburnia.

The main objectives were data collection on energy culture using door-to-door survey method and raising the environmental awareness among the local population. The main tool for this double role of the participants was standardised questionnaire in native languages (although inhabitants mostly understand both languages, the purpose of this was to be as closer as possible to the interviewed person).

The questionnaire was divided into eight sections: general personal data; knowledge of the community; characteristics of the residential building; present way of heating the building; potential wooden biomass supply; existing environmental awareness; division of jobs within the family; and personal interest in participating in the Project.

To each participant, the questionnaire was explained to details, he/she was instructed how to execute the interview, informed about the issues of the climate change, RES and EE and told how to disseminate the information about those issues after the interview.

Every day of the SRCEC, according to the topographical map (1:100m), participants were coordinated from village to village, from door to door (and sometimes sat on the main square of a settlement) and made the survey covering the whole Project area. Each evening of the camp, they shared their experiences from the field and the fulfilled questionnaires were taken to the main office in order to be input at the PC.

The main outcomes of the SRCEC were 430 standardised questionnaires fulfilled, six lectures with 18 participants in average, 12 students were trained in Microsoft Excel. Survey has covered 142 households on the Croatian side and 257 households on the Slovenian side (the final number of correctly fulfilled questionnaires was 399). The database was created in order to be used for the future phases of the Project.

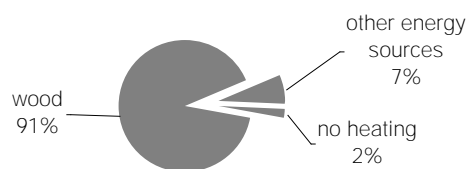
After the SRCEC, Eko Liburnia made the database analysis according to the Project beneficiaries' demands.

## RESULTS

It should be taken into the account; the results presented in this paper are only general outcomes of the whole data analysis. In order to make the paper simpler, the following abbreviations are used in whole figures: SLO for the Slovenian bank of the Kupa river and HR for the Croatian bank of the Kupa river.

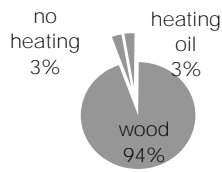
### Heating

Data analysis shows that a great majority (91%) of inhabitants in the Kupa valley use wood as heating fuel (Figure 1). Wood is traditional energy source in the area.

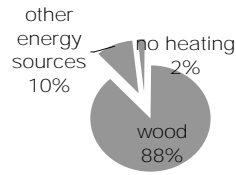


**Figure 1 Structure of heating energy sources (HES) - %**

In the structure it can be seen that on the Croatian side (Figure 2), there is 94% of households heated with wood logs and only 3% uses oil as heating power (and only alternative). On the other, Slovenian, side, 88% of households is heated on wood logs and 10% uses some other heating power - oil, gas or electric power (Figure 3).

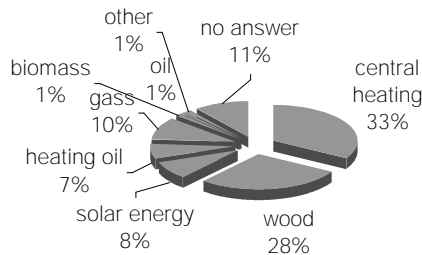


**Figure 2 Structure of HES (%) – HR**



**Figure 3 Structure of HES (%) - SLO**

But, when asked "Which heating would be optimal for you, without concerning finances and other obstacles?" optimal heating rank-list looks like this (Figure 4):

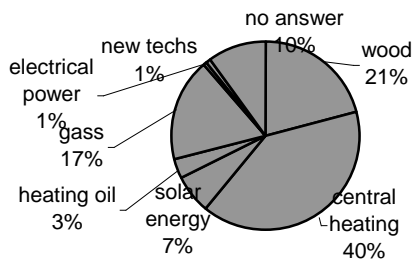


**Figure 4 Optimal heating (%)**

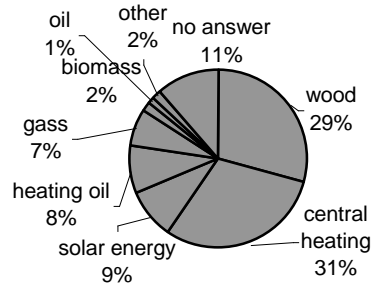
Something more than one third of the questioned households find central heating (on whatever fuel), 28% wood, and 1% biomass as optimal heating. If summed all together, 62% of answers are referring positively on the use of biomass, either directly or indirectly. With certain reservations, to this percentage is possible to add additional 8% referring to the solar energy as optimal heating.

Those households could be marked as "environmentally aware" but, in present circumstances and with current knowledge, it is unlikely to execute solar heating in the area of Kupa valley. If added, total of positive answers regarding biomass would be 70%.

Answer comparison of the left and right bank of the Kupa river, (Figures 5 and 6), it is possible to spot great similarities. Namely, from both sides 62% of answers have positive (direct or indirect) sound, although the structure of the answers (central heating, woods, new technologies/biomass) is slightly different. If solar power included, the percentage amounts 71% on the Slovenian side and 69% on the Croatian side.

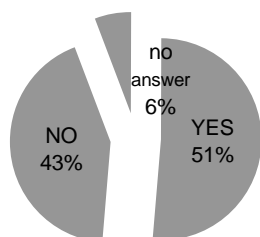


**Figure 5 Optimal heating (%) - HR**



**Figure 6 Optimal heating (%) - SLO**

**Wooden biomass**

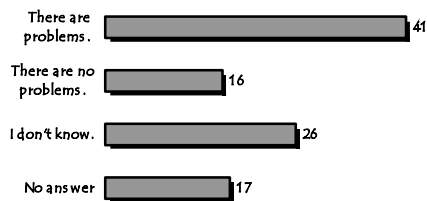


**Figure 7 Have you ever heard about wooden biomass?**

Half of the questioned persons does not know or have never heard or does not want to respond on the question related to the biomass (Figure 7).

Comparison of the both riverbanks shows that biomass as a term is better known on the Slovenian side (47% HR vs. 54% SLO). But, as above mentioned, every interviewer had to explain the terms of biomass and wooden biomass and related issues after

completing the questionnaire. Therefore, these results came across the survey but the present state is that every household questioned has at least the basic knowledge of the wooden biomass.

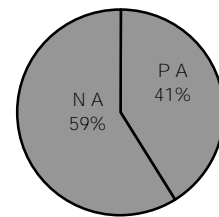


**Figure 8 Are there any environmental problems connected with energy? (%)**

If answers "no", "I don't know" and "I don't want to answer" are understood as different levels of ignorance and/or lack of information on actual environmental problems, the chart looks like this (Figure 9 – N A for negative answers and P A for positive answers):  
But, we believe that we have managed to raise the environmental concern through our summer camp while every participant was instructed to "serve" as walking environmental information source.

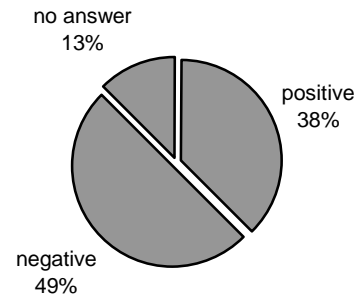
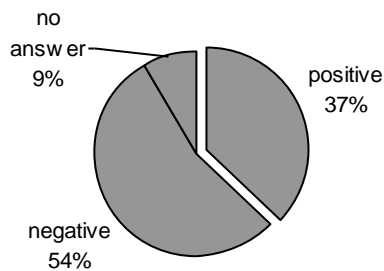
**Environmental issues**

Researching the level of environmental concern and knowledge has shown results that ask for answers. Many participants were surprised by the result. Only 41% of inhabitants have answered with "yes" on the question "Are there any environmental problems connected with energy?" (Figure 8). Results are more or less identical at the both riverbanks.



**Figure 9 Environmental problems and energy - generalised (%)**

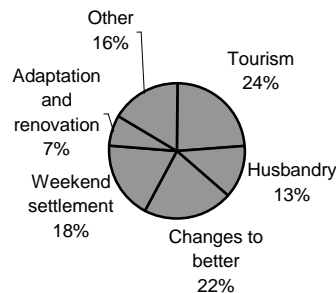
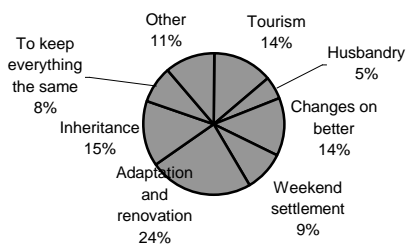
**Insight to the future**



**Figure 10 Thinking about the future... (%) SLO      Figure 11 Thinking about the future...(%) HR**

Sociological part of the survey was finding out aspirations and thoughts about the future and perspective of the inhabitants of the Kupa River valley. The results showed crushing quality of inhabitants' spirit (Figures 10 and 11). As many as 54% on the Slovenian side and 49% on the Croatian side think negatively about the future, and, all in all, only 37% and 38% respectively has some positive attitude.

Positive attitudes have some differences in the structure if compared from the both sides (Figures 12 and 13).



**Figure 12 Positive perspectives (%) SLO**

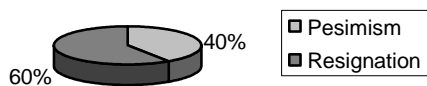
**Figure 13 Positive perspectives (%) HR**

On the Slovenian bank of the Kupa River, majority among "happy" 37% would like to adapt or improve buildings (24%), or to leave the household bequeathed (15%) or would like to deal with tourism (14%) or they just passively hope for the better (14%).

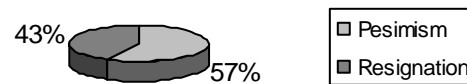
On the Croatian bank of the Kupa River some of these positive attitudes are not even mentioned. For instance, there is no wish to leave everything as it is or to bequeath. The dominated perspectives are: tourism (24%), passive hope for the better (22%), weekend-settlement (18%). Adaptations and improving of the buildings amount less on this side for weaker purchasing power of the Croatian inhabitants than Slovenian.

It is also interesting the rather representative category of weekend-settlements (9% on the Slovenian side and 18% on the Croatian side). The inhabitants would like to transform their settlement (village, town) into weekend-settlement, without stable inhabitants. This category is very complex and draws many questions. Does that mean that the inhabitants are willing to move out from their houses? If so, why?

Negative attitudes are divided into two categories: pessimism (answers like "there is no future", "everybody will become extinct" and similar) and resignation (answers like "nothing will change", "I don't know", "nothing" and similar).



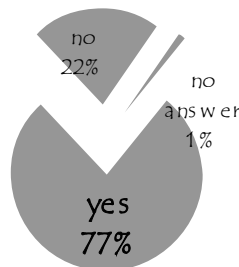
**Figure 14 Negative perspectives (%) SLO**



**Figure 15 Negative perspectives (%) HR**

Although Croatian side has shown as slightly less negative (49%) than Slovenian side (54%) (Figures 11 and 10), the structure shows that Croatian residents of the Kupa River valley are mostly resigned (60%) and Slovenian residents are more pessimistic (Figures 14 and 15).

**Willingness to participate in the Project**



But, in order to put add some colour at this black and grey picture, 77% of households have expressed their wish to participate in the following steps of the Project and "Sustainable Future for the Kolpa (Kupa) Valley".

**Figure 16 Participation in the future project activities (%)**

**CONCLUSION**

The whole first phase of the Project led to the following conclusions, which were only underlined by the experience from the field:

- Unavailability of modern biomass heating systems on regional and national level;
- Lack of information on the modern environmentally friendly heating technologies;
- Not very high level of environmental knowledge and awareness among local population;
- Low purchasing power of the local inhabitants;
- Lack of support and tool for using biomass as heating fuel both on national and regional level;
- Poor cooperation between regional and national authorities (forestry, rural development, environmental protection, industry, tourism).

But, there is a strong belief that there is a critical mass of local inhabitants to continue the Project.