Co-funded by the European Union

Green Plan forBIM4Energy Project

CONTENTS:

1. **CONCEPTUAL FRAMEWORK**
2. **BIM4ENERGY**
3. **RECOMMENDATIONS**
4. **CONCLUSIONS**

---

1. CONCEPTUAL FRAMEWORK

Environment and climate action are **key priorities for the EU now and in the future**. The European Green Deal Communication is the European new growth strategy recognising the key role of schools, training institutions and universities in engaging with pupils, parents, and the wider community on the changes needed for a successful transition to climate neutrality by 2050. In addition, the Council Recommendation on learning for the green transition emphasizes the need to provide learners of all ages with opportunities to find out about the climate crisis and sustainability through both formal and non-formal education, and to make learning for the green transition a priority in education and training policies and programmes. **Sustainability should become a part of the entire spectrum of education and training**, including curricula and professional development for educators, **as well as buildings, infrastructure and operations**. The Erasmus+ programme is a key instrument for building the knowledge, skills, and attitudes on climate change and supporting sustainable development within the European Union and beyond.

Environment and the fight against global warming is a horizontal priority in selecting the projects. Priority will be given to projects aimed at developing competences in various green sectors, including those within the framework of the contribution from education and culture to sustainable development goals, developing green sectorial skills strategies and methodologies, future-oriented curricula, as well as initiatives that support the planned approaches of the participating organizations regarding environmental sustainability.

The Programme supports the use of innovative practices to make learners, staff and youth workers true actors of change (e.g. save resources, reduce energy use, waste and carbon footprint, opt for sustainable food and mobility choices). Priority will also be given to projects that - through education, training, youth and sport activities - **enable behavioural changes** for individual preferences, cultural values, awareness, and more generally support active engagement for sustainable development.

© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union

Therefore**, organizations and participants involved should strive to incorporate green practices in all projects when designing activities**, which will encourage them to discuss and learn about environmental issues, to reflect about local actions and to come up with greener ways of implementing their activities.

Therefore, apart from the contribution of BIM4ENERGY project towards the transition to climate neutrality through its different outcomes, it is very important to incorporate green practices throughout the project and to promote behavioral changes in our organizations.

© BIM4Energy. This work is licensed under a
Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union

2. BIM4ENERGY

- The aim of this project is to provide higher educational organizations with methodologies and teaching materials on the use of BIM to evaluate the energy efficiency of a building, thus contributing to the digitalization of the construction sector in terms of the design, construction, and maintenance of buildings, and to provide municipalities and construction workers with the necessary tools to choose the best renovation alternatives to improve the energy efficiency of existing buildings.

The project general goals are:

GO1: The general aim of this project is to create educational resources to build skills and competences for future construction actors, higher education students now, so that they may become drivers of change for the building sector, towards the transformation of existing buildings into nearly zero-energy buildings, reducing the environmental impact and thus meeting the objectives of EU directives and member countries' plans.

GO2: Raise awareness of the problem of energy inefficiency in buildings.

GO3: Increase and update the didactic contents used in the HEI on analysis of the energy efficiency of buildings incorporating the BIM Methodology.

GO4: Provide municipal employees with tools to facilitate their work of applying for grants for the energy rehabilitation of buildings, as well as informing citizens in the best alternative to improve energy efficiency with the minimal investment.

To achieve these objectives, we plan to produce the following results:

- Exchange of good practices & Energy efficiency study with BIM (WP2). Presentations and videos of the Learning-Training Activity where knowledge of the different partners will be exchanged. Report of the study to be carried out on building energy efficiency (BEE) using BIM methodology in different typical building of the partners' territories.
- Teaching material about BEE (WP3)
- Wep app based on BIM and GIS technologies to evaluate the energy efficiency of existing buildings (WP4).

© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

3. RECOMMENDATIONS

3.1. ENERGY CONSUMPTION

In energy conservation and energy economics, the rebound effect (or take-back effect) is the reduction in expected gains from new technologies that increase the efficiency of resource use, because of behavioral or other systemic responses. Gains in energy efficiency can encourage behavioral change towards more energy use, meaning some of the anticipated energy savings may be "taken back". For example, energy efficient lighting saves energy, but also makes lighting cheaper, which, in turn, encourages people to light up larger areas to higher levels over longer periods of time. Widespread adoption of energy-efficient lighting may also bring down the price of electricity, which could further encourage increased consumption.

Therefore, it is important to work, not only on improving the energy efficiency of a building by implementing a restoration, but also educating its users, so that they follow a set of recommendations. Within an organization, it is recommended to get your employees/ students/ users on board to save energy in the workplace or education center. Make sure that your users are educated on the importance of saving energy, involving everyone towards a common goal.

There are many tips that we can use in our everyday at work, in the place where we study, or at home:

Encourage 'tea rounds' where people can take it in turns to make drinks for their colleagues, instead of each person boiling the kettle individually. (Did you know, each time you boil a kettle, it uses between 2-3 kWh of electricity? Taking into account that a laptop needs 0.4 kWh per 8 hours, every time a person prepares a tea would be equivalent to 50 hours of laptop).

Turn off and unplug all electrical appliances at the end of the day to make sure you're not still guzzling unnecessary energy outside of business hours.

An easy switch (literally) is to change the settings of computer monitors to make them go to sleep after a certain period of inactivity, such as during lunch breaks.

Keep an eye on your temperature – did you know that over-heating your workspace by just one degree can increase your heating bill by as much as 8%?

Consider your dress code – by relaxing dress code rules and letting employees dress for the weather, you are less likely to need to rely on heating and air conditioning, and your employees will be more comfortable.

Reduce the use of paper – print only what you need. Print on both sides of the paper.

Protect your window from the sun – every square meter of solar radiation entering through your window is equivalent to 1 kw heater.

Swicht off air conditioning in empty rooms – Sectorized air conditioning allows to switch off cooling systems when not being used.

© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Use the stairs instead of the lift – you will reduce energy consumption at the same time you stay fit and healthy.

Use the microwave to heat things – It is quicker than the oven and it consumes between 60 and 70% less.

Use fans - They use around 1% of the electricity consumed by air-conditioning.

We can print tips and stick them on appliances, walls, doors in order to remind our users these recommendations in order to lower the electricity bill and the same tine we take care of our environment. Attached to this manual, you may find many different options.

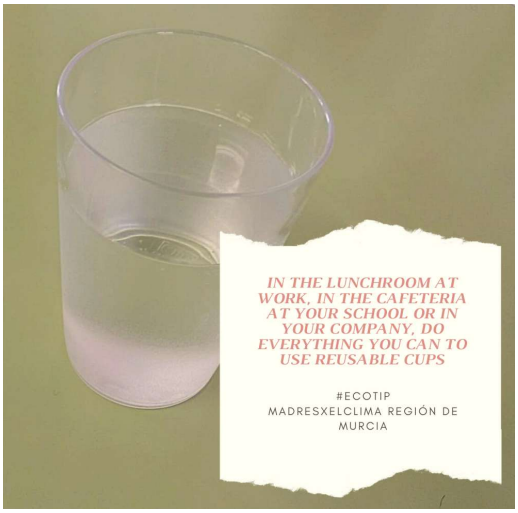
3.2. OTHER GOOD PRACTICES

Apart from energy savings, more related to BIM4ENERGY topic, in any Erasmus Plus Project organizations and participants involved should strive to incorporate green practices in all projects when designing the activity, which will encourage them to discuss and learn about environmental issues, to reflect about local actions and to come up with alternative greener ways of implementing their activities.

In the Region of Murcia, Madres por el Clima, coming from the Parents for Future movement, have created ecotips, which are a good way to inspire people on how to make small changes, which may have a big impact, as they are repetitive actions in our everyday lives, and when we start doing them, we become a role model for others. The ecotips are the following:

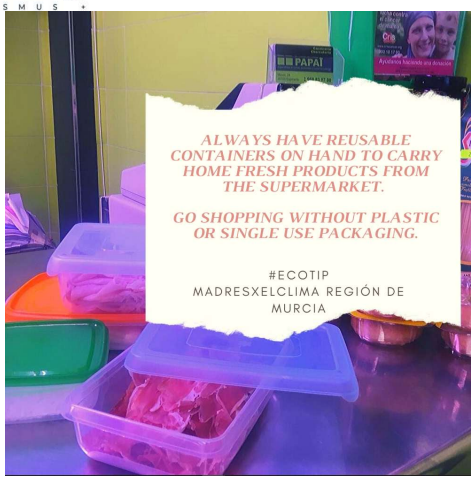
© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

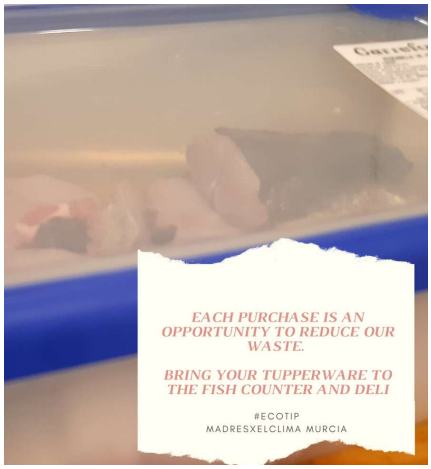
Co-funded by the European Union

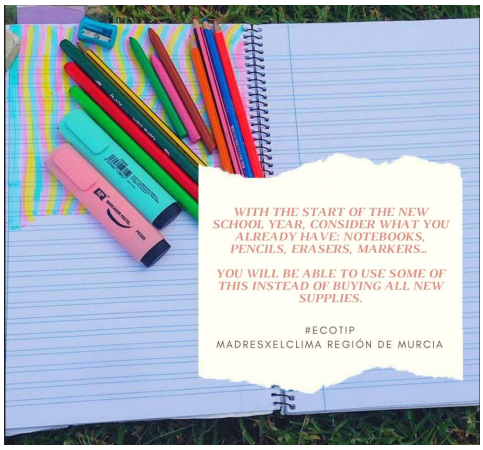


© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union

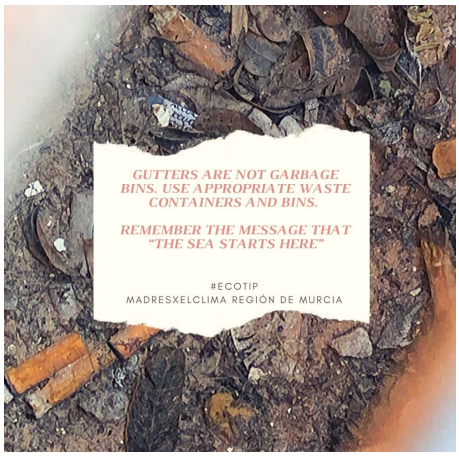


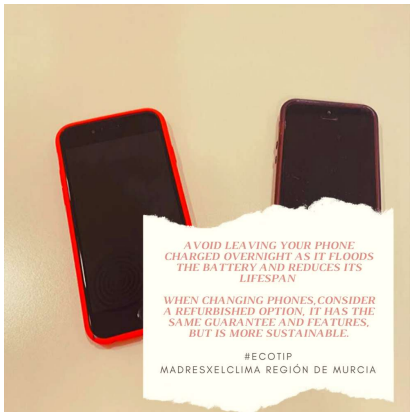


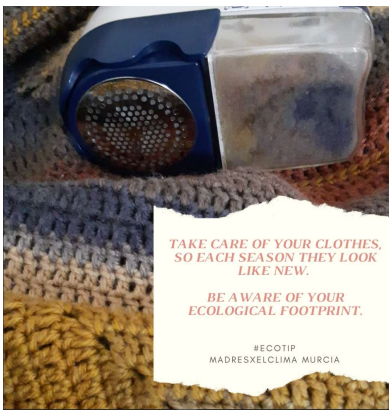


© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union

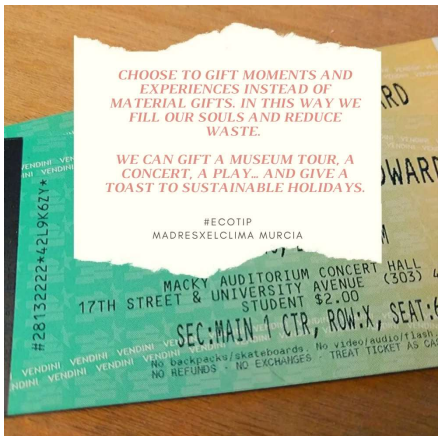


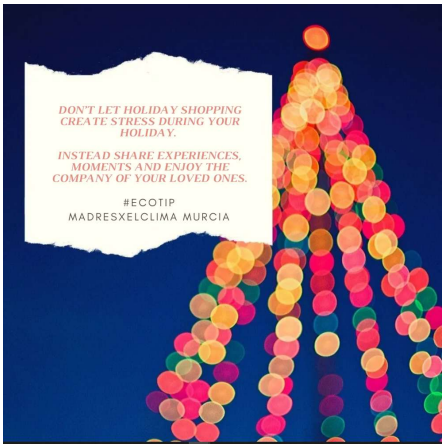


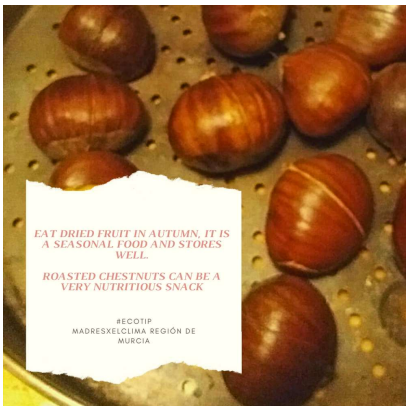


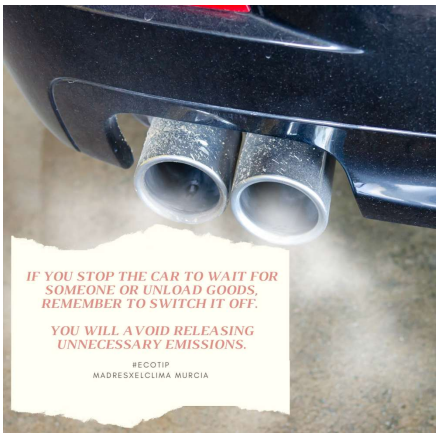
© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union









© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by the European Union

3.3. KEEP STAFF AND STUDENTS UPDATED

Keep staff updated – If you have an internal newsletter, you could include a section detailing the progress that you have made with your energy saving initiatives so far and encouraging employees to continue their hard work. So can also distribute our BIM4ENERGT newsletter, where we will publish project advances, but also different recommendations.

3.4. COMPETITION

Finally, make it fun! – you could turn saving energy into a game with incentives and competitions, not only will this boost savings, but it will boost morale too! Ayuntamiento de Ceutí took part in a project called COMPETE4SECAP, where competition among buildings and municipalities were established. Sometimes people are more encouraged to change their behavior through competitions than by knowing which are the benefits for the environment.

3.5. RECOMMENDATIONS WHEN RUNNING THE PROJECT.

Finally, along the project, we have to try to minimize our footprint by:
:
- Using QR codes for promoting all our results.
- During the meetings and events, serving only local food and filtered water.
- Trying to book direct flights to attend to meetings. Host organisations will provide information about how to use public transport, where to rent a bike for moving around, car sharing options...
- When giving something to participants to the multiplier events, it will be something practical. For example, a mug that can be used for speakers or attendants to use disposable glasses, may also contain a QR code leading to the project website. Therefore, attendants will also be updated od the project information.
- Taking part in plogging activities (picking up litter) in order to compensate the carbon footprint.

© BIM4Energy. This work is licensed under a Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/

Co-funded by
the European Union

4. CONCLUSIONS

BIMENERGY project can be a good excuse to inspire our colleagues, co-workers, students, citizens and make a difference!

© BIM4Energy. This work is licensed under a
Creative Commons CC-BY-NC-SA 4.0 license.
https://creativecommons.org/licenses/by-nc-sa/4.0/