

THE ECOLOGY OF FRANCESCO



(ARE FOR (REA)TION, THE JOURNEY,
AT THE ASSISI EVENT

Organising Committee The Economy of Francesco.

The young, a pact, the future – Assisi 2022:

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In partnership with:

Dicastery for Promoting Integral Human Development
Franciscan Families in Assisi
Istituto Pro Civitate Christiana
Santuario della Spoliazione and the City of Assisi.
Sisifo Società Benefit as Sustainability partner

Sustainability project (the Custody of Creation project)

WORK GROUP:

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ORGANISATIONS INVOLVED AS CUSTODIANS:

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The Economy of Francesco means business. The conference of young economists, changemakers and entrepreneurs held in Assisi from 22 to 24 September was not just a show. The pact between Pope Francis and the young is a commitment for life. It sparked off a process that has the potential to rekindle a forward-looking, change-making energy.

In this journey, the environmental factor plays a key role. And it couldn't have been differently as this is a process that follows in the footsteps of St Francis in the city he was born in and looked at him in amazement in his dramatic "renunciation".

*His choice of nakedness was a song. Ahead of his time, he expressed God's praise for His creatures: *Laudato si' mi' Signore cum tucte le tue creature*. Far from being an environmental programme, it wove the golden thread of the Christian perspective around the Custody of Creation, so that on the background of our current environmental emergency it became a light shining on the ecological transition: the "conversion" that Pope Francis asks for, first in his encyclical *Laudato si'* in the name of integral ecology and then precisely in the name of this "integral-ness" in the encyclical *Fratelli Tutti*, which he signed off on the tomb of the Poor Man of Assisi. *Fratelli tutti*, all brothers, not only humans but also, not analogically but really, our brother sun and our sister moon, our brother wind and our sister water, our brother fire and our sister Mother Earth. A bond of brotherhood joins all beings, like the multicoloured fruits of God's only creative act.*

In the pact signed in Assisi, the commitment to "an economy that takes care of creation and does not plunders it" exudes the urgent need of an ecological situation that is on the edge, where the slow pace of global politics is an unacceptable outrage. Young people are rightly standing up as vigorous and persistent sentinels of a new pace of economy: facts, not words are needed.

That's why the Assisi event was devised in the name of the testimony. An event not just of words but of facts, organised so that the parameters of ecological conversion could stand out in the very structure of the event as a sort of "event within the event", and the conclusions could be not mere theory but factual results.

This is the meaning of this "Report" which chronicles the efforts made by everyone, and especially by "Sisifo Società Benefit", the organisation commissioned to keep the environmental impact of the event as low as possible, and brings to the fore all that makes us live, breathe and enjoy the beauty of nature, of the landscape and of a peaceful cohabitation.

The results herein speak for themselves. I am glad to report them, as with Francis I praise the Most High, the Almighty, the Good Lord and thank all those who, inspired by Giuseppe Lanzì's passion, have allowed us to tell the beautiful story that has been poured into these pages in great detail.

Mgr. Domenico Sorrentino
Bishop of Assisi - Nocera Umbra - Gualdo Tadino and Foligno,
Chairman of the Organising Committee "The Economy of Francesco"



The CARE FOR CREATION journey at the Assisi event

(by Giuseppe Lanzi,
Sustainability Coordinator EoF)

The Economy of Francesco (hereinafter referred to as **EoF**) is one of the journeys of Pope Francis's papacy that young economists and entrepreneurs across the globe were called to kick off and continue with fresh determination and leadership to give economy a soul.

Since the very beginning, the organisation of **The Economy of Francesco. The young, a pact, the future – Assisi 2022** involved the establishment of a **Committee** to shape and kick off the preparations for such an important event. The committee members include the **Diocese of Assisi, Istituto Serafico, Economia di Comunione**. The event was organised with the support of the **Dicastery for Promoting Integral Human Development, the Franciscan Families in Assisi, Pro Civitate Christiana, Santuario della Spoliazione** and the **City of Assisi**.

The Committee decided to organise the event with its environmental, social and economic impacts in mind and to such end it signed a Memorandum of Understanding with **Sisifo Società Benefit**, which undertook to draw up and coordinate a sustainability plan to reduce the environmental impact of the young attendants and calculate emissions from the activities in the Seraphic City. Sisifo accepted the assignment as part of its corporate purposes, "*common good*", in keeping with its status as a *Benefit Corporation*.

While drafting the **Plan for the Custody of Creation**, reference was made to the **Seven Laudato Si' Goals**¹ as defined on the platform supported by the *Dicastery for Promoting Integral Human Development*², combined with the seventeen Sustainable Development Goals of the UN Agenda 2030, from a synoptic perspective.

While drafting the *Plan for the Custody of Creation*, a few priorities were laid down and were worked on with the partners, while configuring **ACTIONS FOR THE CUSTODY OF CREATION** in line with the Laudato Si' Goals (OLS).



A FEW PRIOR DECISIONS

A few operational choices were made beforehand while designing the event which consisted in reduced emissions and which we prefer to call concrete Actions for the Custody of Creation:

- Elimination of plastic bottles;
- Use of public water and distribution of reusable bottles;
- Reduction in product packaging, leading to a reduction in packaging waste;
- Use of locally-sourced food, food from the seismic crater of Umbria, organic and/or fair-trade food or food grown on land confiscated from organised crime;
- Use of low-impact materials, including in the production of gadgets and dedicated supplies;
- Establishment and care of a community of partners (*Value Bearers*) in support of the project.

Just the adoption of such prior choices meant avoiding a remarkable amount of climate-changing emissions. This Report provides a synoptic reading of the calculation of emissions, which accounts for the actual emissions resulting from the Committee's choices versus emissions from a classic plan.

¹ Cf. <https://piattaformadiiniziativelaudatosi.org/obiettivi-laudato-si/> visited on 13/09/2022.

² Cf. <https://www.humandevlopment.va/it.html> visited on 17/09/2022.

Now, let's look at the Custody of Creation Actions (ACC) carried out in Assisi with the Community of Value Bearers.

ACC 1: SET-UP

Setting up an event for a short time often leads to a considerable waste of materials. To sidestep such problem, a wood and cardboard set-up was developed.

Not just any wood, but PEFC-certified wooden pallets with which we configured a virtuous circle that involved multiple companies: PALM SPA BENEFIT CORPORATION produced 360 EPAL-certified, type-approved pallets which after the event were picked up by POLYCART and reused as originally intended.

Reusable tables, benches and props, also in PEFC-certified wood, were made in partnership with Cooperativa Sociale PALM W&P.

The props were completed by some bespoke 100%-recycled corrugated cardboard pieces produced by FORMAPERTA with CARTESAR. Though they could be recycled as paper, the Committee decided to keep them in the Diocese of Assisi to commemorate the event and maybe reused too.

The tables, chairs and any other piece will be reused for other events, to further reduce their environmental impact.



ACC 2: REDUCING DISPOSABLE PLASTIC ITEMS

The environmental impact of disposable plastic items is well known, and the Committee intended to get rid of all disposable items throughout the event. To do this, washable and reusable metal bottles and cutlery were produced in partnership with Gruppo NOVAMONT.

Understandably, after the outbreak of the pandemic, the health authorities required that meals be distributed in single-serving containers and that cutlery be disposable. With ECOZEMA, we opted for biodegradable, compostable Mater-Bi bioplastic cutlery, in compliance with UNI EN13432, which was eventually disposed of as organic waste.

The project had to be changed, so the disposable materials could not be totally eliminated by just reduced.

With SADESIGN, in partnership with PROGETTO FRA' SOLE, we produced an organic cotton backpack with a flask and collapsible steel cutlery inside, which could be reused after the event.

Despite the minimal impact of the paper badges, we had them made in seed paper; so that, after the event, the badges could be planted and grow into flowers. The cord was bamboo and was not customised to keep its impact low.

As washable plates could not be used, meals were served in biodegradable and compostable PLA bioplastic containers, in compliance with UNI EN 13432, and then recycled as organic waste and disposed of in a composting facility.



ACC 3: CATERING

Catering may have multiple impacts, not just environmental ones. The Committee's first choice was to contact the local catering school so that, under their teachers' coordination, the young students could look after the international attendees by making and serving the meals on the place.

Again, the anti-Covid rules did not let us, but our partnership with the catering school went on in a different way: the young students personally served the meals and took care of the eating areas.

The second choice was to use raw materials that had a value of their own, including a social value. So, ALLFOOD was instructed to buy ingredients grown in the seismic crater of Umbria, mostly from organic farming or grown on land confiscated from organised crime, even in other regions. With the support of FONDAZIONE CON IL SUD, a number of suppliers were found, and part of the products was bought from them.





OUR LUNCHES

ASSISI SEPTEMBER 22-23-24

Background:

All the recipes are made with few fresh, organic and seasonal ingredients, preferably locally sourced or from the lands hit by the earthquake in 2017. Some of them come from lands that have been confiscated from the Mafia or are grown by charities that work in the rehabilitation of socially disadvantaged people, such as the young convicts of the youth detention centre of Bari, or from fair trade. All are selected with the respect for nature and flavour in mind.

The staple ingredients of the plates are:

Cereals, beans and greens, i.e. the staple foods of the Mediterranean Diet, an undisputed treasure trove of health and a paragon of sustainability, for healthy eating habits and respect for the environment.

**Each one of the menus below contains:
bread, fruit, pastries!**

All meal containers are made of compostable materials,
The material of the box is recyclable.

Honey-based foods were served with the support of CONAPI – MIELIZIA, not just to provide excellent food, but also to raise awareness of the bees, which are threatened by pollution and by the climate crisis.

The LIOMATIC vending machines located at the Palaeventi offered a choice of nutritionally suitable products as well as biodegradable and compostable cups that could be disposed of as organic waste.

The lunch tables were provided by different local promotional associations and returned after the event.

I would like to point out that not a single meal was thrown away! In addition to making sure that only the necessary number of meals was made, since you always need to plan for the unexpected, the numbers were always rounded up. However, once all the meals had been served, all the untouched meals were instantly collected by local charities and handed out on the same day to the poorer strata of the local population.



ACC 4: 'HEAVY-DUTY' SEPARATE WASTE COLLECTION

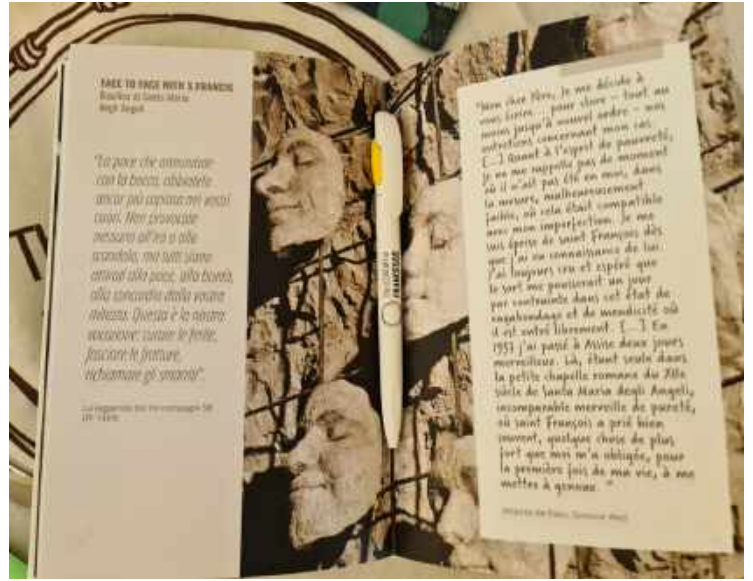
In all the Villages, at Teatro Lyrick and at Palaeventi, separate waste collection was organised by volunteers who took care of all the different types of waste. It was one of the most demanding tasks but, with the help of the volunteers, the readiness of the attendees, and the support of the City of Assisi and the staff at ECOCAVE, the results were beyond expectations.

Plastics too were collected as waste, though a minimal amount. Actually, for some products, we gave priority to the social sustainability of the origin even if packaged in plastics.



ACC 5: SUSTAINABLE NOTEPAD

ASSOCARTA and CARTIERE FABRIANO produced the "Assisi 2022: The Global Event" card and cardboard notebook with the Committee's texts that gave the attendees ideas for meditation.



ACC 6: CALCULATING CLIMATE IMPACT

In the attempt to reduce environmental impact, the emissions of an event need to be measured by means of standard scientific methods. Therefore, all through the design and development of the event, data were meticulously collected partly by collecting the product data sheets and using them to quantify the emissions. The collected data were processed according to an estimation model in compliance with the rules of **IPCC**, *International Panel of Climate Change*, that enabled us to measure the climate index of the event (Tons of CO₂ eq).

Suitable sensitivity analyses then allowed us to properly adjust the climate data and made our measurements reliable and comparable. After such measurements, a final Report was drawn up to provide evidence of the results and benefits of the ethical choices if properly implemented by the organisers. Note that the Good Practices implemented in the selection of the suppliers led to a duly quantified and specified reduction in climate-changing emissions.

Such actions were made possible by Gruppo BANCA POPOLARE ETICA, the technical professional expertise of the French group MÉRIEUX NUTRISCIENCES (EcamRicert Division) and OIKURIA, with the support of FONDAZIONE PERUGIA.

ACC 7: IMPACT REPORT

In *The Economy of Francesco* the commitment to the CUSTODY OF CREATION did not boil down merely to the preparation and performance of the event: this final Report wants to account for the impact indices of the event. This initiative aims at conveying the meaning of the commitment to taking care of our common house, which does not end with the event but continues after it. Through such Good Practices, we want to signify and convey the urgent message that there can be no future if we don't take care of our common house.

The Impact Report must convey the urgent message that the care starts with the small everyday deeds, from responsible choices that lead to a critical and wise use of the resources to the promotion of a circular economic system that enhances the materials and encourages reuse.

The Report is available for all those who want to find out more about the Assisi experience and maybe apply it elsewhere.



ACC 8: OTHER ACTIONS

The attention to detail also led to consider issues that are usually less glaring but no less important: even the paper stationery, the toilet paper and the paper napkins were selected for their environmental impact.

Coordinated once again by ASSOCARTA, LUCART and SOFIDEL provided paper towels and toilet paper; CARTIERE BURGO supplied all the paper materials for the workshops and the secretariat³. The customised pens handed out to the attendees were made of Mater-Bi bioplastics too.

ENVIRONMENTAL RESULTS

The results of such Care for Creation actions delivered really encouraging results. The forecasts based on standard data had predicted that the event, the perimeter being the same, would have produced approximately 143 tons of carbon dioxide equivalent.

As detailed in the technical Report below, **the Care for Creation actions avoided the production of 116 tons of CO₂!** Compared with the estimated 143 tons of CO₂ equivalent from standard solutions, with these Care for Creation actions less than thirty tons were produced.

The Volunteers' Handbook



The Care of Creation team


In his Encyclical *Laudato Si'*, Pope Francis calls every inhabitant of the Earth to take care of the **common house**. His call makes us realise that we do not only share a place called Earth but we also have a joint responsibility for safeguarding it as a precious gift that we have received and that we must hand down to the next generations.

The Economy of Francesco wants to be that as well, a place of commitment to the Care of Creation where everyone is called to do their part in this common project of care that wants to minimise the impact of the event.

This is precisely where your commitment finds its place: as a **member of the Care of Creation team**, you decided to volunteer to help achieve the sustainability goals of the event and to assist your brothers in behaving kindly and thoughtfully over the three days of the event.

You shall pay special attention to waste management, and you will be given responsibilities for that:

1. You shall attend to the waste collection areas to give directions to the participants;
2. Empty the bins when full, replace the bin liners, and bring the bin liners to the outdoor bins;
3. In the Google form, write down every waste disposal operation, including the date, time, type of waste and number of bin liners disposed of:
 - Link to shorturl.at/fvZ14
 - Or scan the QR-code with your phone



Over the next few pages, you will find a description of the EoF Care of Creation plan and detailed information about the materials and waste collection methods we are going to use during the event.

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³ Cfr. <http://www.assocarta.it/it/sala-stampa/comunicati-stampa/1255-un-taccuino-in-carta-per-economy-of-francesco-l-evento-fortemente-voluto-da-pa-pa-francesco-che-si-apre-oggi-ad-assisi.html> visited on Nov 4, 2022

Economy of Francesco: a sustainable event

Every human activity, including events, has an environmental impact. The EoF was specifically designed to mitigate such impact as well as offset it with the environmental reclamation steps included in the **Care of Creation Plan**.

Such Care of Creation Plan includes the following **Actions for the Care of Creation**

- 1. Setup:** Using pallets, wood and cardboard that are intended for reuse after the event.
- 2. Disposable materials:** Pursuant to the regulations of the public health authorities, disposable materials could not be completely removed, so we opted for biodegradable, compostable materials that complied with UNI EN 13432 standards.
- 3. Catering:** The ingredients were sourced from farmers that grow their produce on land confiscated from organised crime or from organic farming.
- 4. Separate waste collection:** Implemented in designated areas and assisted by volunteers.
- 5. Sustainable diary:** Made of certified paper and a bioplastic pen.
- 6. Impact computing:** by computing Carbon, Water and Social Footprints.
- 7. Offset steps:** Using Sustainability Credits
- 8. Impact Report:** Accounting for the impact saved, created and offset.

Separate waste collection: Actions for the Care of Creation

TYPES OF WASTE	WHAT TO DISPOSE OF
CARD AND CARDBOARD	Lunch boxes 
PLASTICS	Packaging from vending machines 
ORGANIC WASTE	Cups from vending machines Scoops from vending machines Meal packaging Packaging, cutlery and napkins from lunch kits 
ALUMINIUM	Cans Tinfoil 
GLASS	Bottles 
RESIDUAL WASTE	Other types of waste (other than the above) Non-packaging materials Multi-material products

Biodegradable and compostable materials

Disposable materials for the meals and vending machines could not be completely eliminated. So, we decided to use food and drink containers that complied with the EU UNI EN 13432 standard, certifying that such materials can be disposed of as organic waste and eventually reused to make compost, which is a natural fertiliser.

These are the materials the products we use are made of:

Other materials

Whenever no biodegradable and compostable materials could be had, we took special care of finding materials that could still be separated and recycled: the lunch boxes are cardboard, which can be recycled as paper; the snacks in the vending machines are packaged in materials that can be recycled as plastics; the drinks for the breaks in the Villages come in glass bottles.

Bins for other types of waste (aluminium and non-recyclable residual waste) are available too, so all the waste can be accurately disposed of and will not contaminate the other types of waste, hoping they will always be empty!

- Cutlery is made of Mater-Bi®, a family of biopolymers derived from vegetable sources that are biodegradable and compostable according to the EN13432 standard. Mater-Bi® is developed and manufactured by Novamont. It can resist up to a max temperature of 80°C and is a milky colour. In the form of a film, it can also be used to make the bags and packages that the cutlery kits are wrapped up in.
- The lunch food containers are made of Polylactic Acid (PLA): it is a family of biopolymers derived from corn starch that are biodegradable and compostable according to the EN13432 standard. Such amorphous polymer can resist up to a max temperature of 45°C and is perfectly transparent. It is mainly thermoformed into cups and trays that have similar aesthetic and mechanic specifications as polystyrene but are only suitable for cold food and drinks.
- The cups and scoops from the vending machines are made of food-grade paper and cardboard, both certified to the EN13432 standard as biodegradable and compostable products. The cups are PEFC-certified (Programme for Endorsement of Forest Certification schemes), meaning that the materials come from sustainably managed forests and may be tracked all through the supply chain, as proof of the provenance of the finished item.

How to identify biodegradable and compostable materials

All plastic materials, including bioplastics, must mention the material they are made of.



- PET or PETE (polyethylene terephthalate)
- HDPE (high density polyethylene)
- PVC or V (polyvinyl chloride)
- LDPE (low density polyethylene)
- PP (polypropylene)
- PS (polystyrene or Styrofoam)
- Other plastics: including bioplastics

As well as reading the composition, one can tell that a product is biodegradable and compostable if it bears a Certified Compost Seal.

Here are the most common compost seals:



compostable



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CONCLUSION

This plain figure on CO₂ reduction proves that taking care of the preparation of an event remarkably mitigates its impact. It also shows as clearly that **Custody of Creation is a collective, communal deed that needs everyone's cooperation.**

We could actually have organised any action whatsoever, but if the attendees had not been actually involved now we would have a list of good intentions and no results.

It should be noticed that, apart from the language problems, the boys and girls carefully followed the organisers' directions, and this allowed the event to deliver these excellent results.

WHAT STILL NEEDS TO BE DONE / CALL TO ACTION

Consistently with its purpose, this Report focusses on the analysis and calculation of emissions. However, prompted by such data, the Committee started an additional survey to find potential offsets, using sustainability credits in and around Assisi.

The collected data may act as a starting point to encourage every attendee to voluntarily offset their attendance, including emissions from travelling to and around Assisi, since they were left out of the initial perimeter.

We believe that the attendees' joint efforts in taking CF offset steps may remarkably help achieve the sustainability goals, with positive impacts on the local communities and the surrounding region.



THE COMMUNITY OF VALUE BEARERS – CONCLUSIONS AND ACKNOWLEDGEMENTS

This text could not end but with a long list of acknowledgements; in a time in which we are all encouraged to stand out by singing solo, this project has been developed by a **symphonic choir**.

We wish to give our most heartfelt thanks to the organisations involved, one by one, knowing that behind each brand there are people who believed in the project and made it possible through their factual efforts. Here they are: Allfood, Assocarta, Banca Popolare Etica, Cartesar, Cartiere Burgo, Cartiere Fabriano, City of Assisi, Conapi – Mielizia, Mérieux Nutrisciences (EcamRicert Division), Ecocave, Ecozema SB, Fondazione Con il Sud, Fondazione Perugia, Formaperta, Progetto Fra' Sole, Istituto Alberghiero di Assisi, Liomatic, Lucart, Progetto Lucensis, Local promotional organisations, Novamont SB, Oikuria, Palm W&P, Palm SB, Polycart, Sadesign, Sisifo Società Benefit, Sofidel.

Their proactive involvement in, as well as their contribution to, the CUSTODY OF CREATION project at EoF have been an example of the way economic and social sustainability may be a real, feasible goal.

The City of Assisi, through its Mayor, Eng. Stefania Proietti, deserves special thanks for having put itself on the line to make the initiative a success. From the city management to the schools, the world of associations and all the citizens who proactively helped; some by volunteering and all the others for welcoming an event that inevitably inconvenienced the people who live in Assisi.

However, the biggest thank-you, after the one to the Holy Father for having wanted *The Economy of Francis*, undoubtedly goes to the **Organising Committee**, whose members include the Diocese of Assisi, Nocera Umbra and Gualdo Tadino, Istituto Serafico and Economia di Comunione, with the support of the Dicastery for Promoting Integral Human Development, Pro Civitate Cristiana, the Franciscan Families of Assisi and Santuario della Spoliazione.

So, many thanks to all the Committee members, first and foremost its Chairman, Mgr. Domenico Sorrentino, Archbishop of Assisi, then to the members, the Lawyer Francesca Di Maolo and Professor Luigino Bruni. This project could not even have been imagined without their prior choice to make sustainability a key point, and not just a “frill”.

Invisible to most, but invaluable, is the constant support we have received from Walter Ganapini and Andrea di Stefano, who are always willing to seek new paths with us along the paths of integral ecology.

Lastly, I cannot forget the Organising Secretariat and its members, Dr Chiara Pancino, Dr Maria Gaglione and Dr Francesca Giglio, for their indefatigable efforts, which are not finished yet.

We hope the experience gained while organising this event – maybe unusual for a papal event – may set the example and be a model for other events and initiatives that want to promote sustainability and deliver even more important results.

At a time in which the climate crisis is increasingly worrying, promoting sustainable practices becomes ever more urgent and essential. We wish this initiative of care, this **CARE FOR CREATION** initiative, may be an example of the way one can join forces to protect and preserve Creation for the present and future generations.



TECHNICAL REPORT

Carbon Footprint (CF) analysis for: “The Economy of Francesco. The young, A pact, the future” Assisi, September 2022

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ABSTRACT

The purpose of this technical Report is to describe the method and the results of a Carbon Footprint Analysis for “The Economy of Francesco 2022”, based on UNI EN ISO 14040:2021, UNI EN ISO 14064-1:2019 and UNI EN ISO 14067:2018 technical standards. The CF of the event was calculated using the collected data and the IPCC algorithm, and turned out to be **27 tons of CO₂ equivalent**.

A detailed review of the distribution of the results across the cost centres shows that: 15.98 tons of CO₂ equivalent were generated by the materials used in the event, 2.27 tons by the waste, and 8.91 tons by the overnight stays. As to water and electricity consumption, the results are 0.04 and 0.003 tons of CO₂ equivalent, respectively.

In terms of percentages, 58.73% of the environmental impact was accounted for by the materials, 0.15% by electricity, 8.34% by the waste, and 32.75% by the overnight stays. Such analysis shows that the total CO₂ emissions were mainly accounted for by the materials, followed by the overnight stays and the waste.

Lastly, the data collected about waste show that the overall rate of separate collection exceeded **90%**, with **75%** of organic waste eventually composted.

DEFINITIONS:

EoF: *“The Economy of Francesco” is a worldwide event that brings together young economists, entrepreneurs and innovators to create a fairer, more inclusive and sustainable economy. The event was named after St Francis of Assisi, the patron of ecologists, and wants to promote a radical change in the way economy is conceived of and practiced. The event was first launched in 2019 on the resolve of Pope Francis who invited young people from all over the world to take part in a dialogue and come up with innovative solutions to face the global economic and social challenges. “The Economy of Francesco” is also a platform for cooperation and sharing, in which everyone can interact, exchange ideas and build support networks to accomplish real, sustainable projects that result in positive societal shifts.*

In this document, “EoF” shall mean “The Economy of Francesco. The young, A pact, the future”, an event held in Assisi from 22 to 24 September 2022 with Pope Francis; on that occasion, young economists from all over the world gathered to explore and share ideas on a new economic paradigm centred on justice, inclusion and sustainability. During the event, the attendees had the opportunity to share their views on issues such as economic inequality, poverty, climate change, social justice, environmental protection and the promotion of a circular economy, while creating a global network of cooperation and innovation.

Committee: *The Organising Committee of “The Economy of Francesco” is in charge of planning, coordinating and implementing the event. Chaired by Mgr. Domenico Sorrentino, Archbishop of Assisi, members include professor Luigino Bruni and Lawyer Francesca Di Maolo, as well as the Diocese of Assisi, Istituto Serafico and Economia di Comunione, under the aegis of the Dicastery for Promoting Integral Human Development, in partnership with the Municipality of Assisi, the Franciscan Families, Pro Civitate Christiana and Santuario della Spogliazione. Its sustainability partner is Sisifo – Benefit Corporation.*

SDGs/SUSTAINABLE DEVELOPMENT GOALS: *these are the Sustainable Development Goals adopted by the UN General Assembly in 2015 as part of Agenda 2030 for Sustainable Development. The SDGs are a group of 17 specific goals and 169 targets covering a wide range of economic, social and environmental issues. The SDG Goals include the reduction of poverty, the promotion of health and wellbeing, access to education, the fight against climate change, the promotion of peace and justice, and so on. The aim of the SDGs is to drive global efforts towards sustainable progress by encouraging all countries, even the developing ones, to adopt sustainable policies and practices. In addition, the SDGs aim to promote cooperation among nations and stakeholders to achieve the Goals by 2030.*

OLSS/LAUDATO SI' GOALS: *it is a group of Goals advanced by the Laudato Si' Action Platform created in 2018 by the Holy See's Dicastery for Promoting Integral Human Development as one of the actions of the Catholic Church to promote integral ecology and the implementation of the lessons of the Pope's encyclical Laudato Si'. The Laudato Si' Goals were developed as a factual tool to promote environmental sustainability, social justice and care for the earth, and are based on the principles of the Encyclical. Such Goals include, for example, the promotion of renewable energy sources, the protection of water and common goods, the protection of biodiversity and sustainable farming. Just like the SDGs, the Laudato Si' Goals inspire concrete actions at a global, national and local level to face the environmental challenges and promote sustainable, integral development in line with the lessons of Pope Francis's Encyclical Laudato Si'.*

Società Benefit: *It is a type of company that combines the goal of producing income with the mission to create positive impacts in the social, environmental and cultural sphere. Such companies are committed to balancing the shareholders' interests with those of the other stakeholders, such as employees, customers, communities and the environment. Typically, Benefit Corporations operate transparently and responsibly and are bound to regularly prove they are committed to achieve social and environmental goals as well as pursuing financial profit. Such approach to business is the distinctive feature of sustainable corporations that aim at solving global problems and promoting a fairer, more responsible economy. In some countries, such as the United states and Italy, Benefit Corporations must be formally accredited as such and must meet specific regulations and reporting requirements.*

GHG: *GHG stands for "Greenhouse Gases". GHGs are gases trapped up in the earth's atmosphere that contribute to the greenhouse effect and therefore to the global warming of the planet. The main GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases (HFC, PFC, SF₆). Human activities, such as the use of fossil fuels, farming, deforestation, the production of energy and industry, are the main sources of the ever-increasing concentrations of GHGs in the atmosphere. Therefore, a reduction in GHG emissions is held to be essential to mitigate climate change and reduce global warming.*

CO₂ eq: *CO₂ equivalent is a measurement that expresses the amount of greenhouse gas (GHG) released by a specific activity or process in terms of the equivalent amount of carbon dioxide (CO₂). As there are many different substances that contribute to the greenhouse effect, and each one has a different global warming potential (GWP – Global Warming Potential) from that of CO₂, CO₂ eq is a measurement that relates the different greenhouse gases to each other by measuring the amounts of such gases as if their environmental impact were equivalent.*

GWP/Global Warming Potential: *it is a measurement of the greenhouse effect of a greenhouse gas compared to carbon dioxide (CO₂), in terms of CO₂ equivalent. In other words, the GWP of a gas means the amount of heat trapped in the atmosphere by a given amount of that gas versus the same amount of CO₂. Such measurement is used to compare the climate effects of different greenhouse gases as guidance for the mitigation policies and practices that may have to be implemented to reduce greenhouse gas emissions and climate change.*

CF/Carbon Footprint: *Carbon Footprint is the amount of greenhouse gas emissions in carbon dioxide equivalents (CO₂ eq) that are directly or indirectly caused by a person, an organisation, an event or a product. Such measurement is used to assess the environmental impact of human activities on climate change across the lifecycle of a resource. Carbon Footprint includes both direct emissions, such as those from fossil fuels for heating or transport, and indirect emissions, such as those from the production and consumption of goods and services, the production of electricity, and waste disposal.*

UNI: *It stands for Ente Nazionale Italiano di Unificazione, the Italian Organisation for Standardisation, responsible for the development of technical standards. UNI is a member of the Sistema Nazionale di Normazione (SNN), the Italian National Standardisation Agency, which also includes the Italian Ministry of Economic Development and ACCREDIA, the Italian Accreditation Body. UNI's main job is the development of voluntary technical standards and sharing them both nationally and internationally. Such standards lay down the requirements, guidelines and technical specifications for a wide range of goods, services and processes, in the attempt to improve quality, safety, performance and innovation in many industries. UNI standards are developed by technical committees whose members include experts, industry players, public authorities and other stakeholders. UNI standards are accredited both nationally and internationally and are often embedded in laws and regulations.*

ISO: *it stands for International Organization for Standardization, an international non-governmental organisation that develops and publishes voluntary standards to promote innovation, quality, performance and safety worldwide. ISO is responsible for developing standards for a wide array of industries and fields, including the industry, farming, the environment, IT and health. ISO standards are built on worldwide consensus among experts and stakeholders, and are developed through a public consultation process. ISO standards are referenced all over the world to vouch for the quality, performance and safety of goods, services and processes. Such standards are an important asset for those companies and organisations that wish to improve their performance and work worldwide according to global standards.*

IPCC: *it stands for Intergovernmental Panel on Climate Change, a scientific intergovernmental agency set up by the United Nations in 1988 and mandated to assess the scientific, technical and socioeconomic understanding of climate change, its sources and consequences, and potential mitigating options. IPCC's members include experts from different countries and backgrounds, such as scientists, economists, sociologists and other professionals. The team carries out critical analyses of scientific and public literature and publishes regular reports that summarise the understanding of climate change and its consequences, as well as any potential mitigating option: the latest reports confirmed the tendency to a constant rise in the earth's average temperature. IPCC's assessments are considered to be authoritative sources on climate change and are used by governments, international organisations and the scientific community to inform their climate policies and decisions.*

Sisifo Società Benefit: *Sisifo is a corporation specialising in the promotion and coordination of complex projects on ecological transition, circular economy and ethical finance. Inspired by the experience of its founder, the Catering Logistics Coordinator at the World Youth Day in Rome 2000, where two million boys and girls gathered around St John Paul II, it helped reduce the environmental impact of the Agorà dei Giovani di Loreto meeting in 2007 with Pope Benedict XVI and coordinated the "Environmental sustainability at World Youth Day" project, part of the Jornada Mundial de la Juventud of Rio de Janeiro, where 4 million people met Pope Francis. With the Custody of the Sacred Convent of Assisi and Arpa Umbria, from 2017 to 2021 it promoted and coordinated Fra' Sole, the Sustainability project of Complesso Monumentale del Sacro Convento di San Francesco in Assisi. Currently, in partnership with the Archdiocese of Lucca, it champions Progetto Lucensis, a project for the development of mutually supportive and renewable energy communities.*

Merieux Nutrisciences (EcamRicert Division): *a French group working all over the world and specialising in safety and quality, which is expressly committed to reducing the carbon footprint and promoting sustainable environmental practices. As part of the Mérieux family, the company has a sound background in public health and prevention. The environmental purposes of Merieux NutriSciences include a commitment to monitoring and reducing the carbon footprint of processes and services. The company cooperates with its customers and suppliers in the development of sustainable solutions while promoting resource efficiency and waste reduction.*

1. BACKGROUND AND GOALS

Organising an event always causes an impact, as a consequence for instance of buying raw materials, consuming power and producing waste, as the inevitable result of setting up/wrapping up and performing the event. While designing an event and thereafter, it is essential to state the commitments, goals and actions that the Organising Committee intends to take to improve the environmental and socioeconomic performance of the event across its lifecycle. It is important, therefore, to adopt accredited and repeatable methods when managing an event so as to quantify and share the impact it will cause, so as to have a yardstick and a term of comparison if the event is repeated. An event is sustainable insofar as it has been conceived, planned and carried out to minimise its negative impact on the environment and leave a positive legacy to the host community⁴.

In this respect, when managing an event, it is important to identify, choose and implement solutions that take its environmental, economic and social consequences into consideration, in the attempt to reduce or eradicate its negative effects and promote its positive effects. The benefits that a sustainable event can bring about are many, and include:

- Reducing the carbon footprint, by defining good practices that can be applied to similar events;
- Benefiting the local economic stakeholders and those who, in their work, adopt environmental, social and economic sustainability criteria (e.g.: short supply chain, organic, no illegal hiring, fair trade, workplace protection and gender equality policies, etc.)
- Contributing to the development of the local community
- Meeting the expectations of the participants and the host community

The commitment to holding sustainable events is part, in its own right, of the efforts that the whole human community is called to make, according to the guidelines of **Agenda 2030**: it is a document signed on 25th September 2015 by the Governments of the 193 UN member states and approved by the UN General Assembly, and consists of **17 Sustainable Development Goals (SDGs)** – within a policy with 169 associated environmental, economic, social and institutional targets that must be met by 2030.

SUSTAINABLE DEVELOPMENT GOALS



⁴ Cfr. UNITED NATIONS ENVIRONMENT PROGRAMME, *Annual Report Seizing the green opportunity*. 2009. <https://www.unep.org/resources/annual-report/unep-2009-annual-report>

In the light of the original UN definition of sustainable development⁵, Agenda 2030 marks the scope of basic principles and goals that the human community has taken as a roadmap to build a more sustainable world, underpinned by intra- and intergenerational justice.

With a view to integral ecology, a concept coined by Pope Francis in his encyclical *Laudato si'* (2015), the Dicastery for Promoting Integral Human Development worked out the **7 Laudato Si' Goals (OLSs)**⁶.



Despite their different perspectives, the SDGs and the OLSs basically converge at a point in which the concept of sustainable development meets the concept of integral ecology: two views sharing the same effort to make man's presence on earth more sustainable, where sustainable means a way of "existing perpetually without depleting the resources needed to continue in the future"⁷.

From the perspective of the SDGs and OLSs, it is obvious that organising sustainable events requires a systematic approach that must cover, at the design and executive stages, all the implications of anthropic pressure on the planet, on society and on economy. For an event to be successful, measuring the financial results is no longer enough⁸, its environmental and social repercussions must be taken into account too, and this is only possible if the event has been designed with sustainability in mind, which then translates into a sustainable management⁹.

⁵ WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (WCED), *Our common future*, 1987: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

⁶ <https://piattaformadiiniziatiavelaudatosi.org/obiettivi-laudato-si/>.

⁷ HOLMES K., HUGHES M., MAIR J., CARLSEN J. X., *Event and Sustainability*. Routledge, Taylor & Francis Group, 2015, p. 2

⁸ SCHLENKER K., FOLEY C. AND GETZ D., *ENCORE festival and event evaluation kit: review and redevelopment*. Gold Coast, Queensland: Sustainable Tourism, CRC, 2010, p. 5

⁹ LAING J. AND FROST W., *How green was my festival: exploring challenges and opportunities associated with staging green events*. International Journal of Hospitality Management, 29 (2), 2010, p. 262

The EoF wanted to be such kind of event, and this Report wants to be a detailed Sustainability Report about the event which, in this case, aims to:

1. describe how sustainability actions, aka CUSTODY OF CREATION actions, could be defined and accomplished through an SDG- and OLS- based design;
2. calculate the climate-changing emissions from the event in CO₂ eq;
3. calculate the climate-changing emissions avoided by the mitigating measures planned and implemented in CO₂ eq;
4. outline a design, analysis and reporting model that may be replicated in any other event.

2. METHOD

The emission-measuring method (Overview System Table) was implemented in accordance with UNI EN ISO 14064-1:2019, UNI EN ISO 14067:2018 and UNI EN ISO 14069:2017 standards. Such standards are based on a Lifecycle approach (UNI EN ISO 14040:2021). The requirements laid down in the standards help identify the environmental hotspots¹⁰ and work out remedial measures to reduce and mitigate the impacts.

Tabella : Overview System

EVENT	The economy of Francesco	2022
TIME BOUNDARIES	21/09/2022 - 24/09/2022	21/09/2022: Set-up 22/09/2022: One-day plenary session at Palaeventi/Teatro Lyryck 23/09/2022: One day in theme villages around town in Assisi 24/09/2022: One-day plenary session at Palaeventi/Teatro Lyryck
ORGANISATIONAL AND OPERATING BOUNDARIES	Assisi (PG) no.1 Palaeventi no. 1 Theatre (Lyric) 12 “Villages” in Assisi	The approach taken to the analysis and measurement of GHGs was the so-called “operational monitoring”. GHG emissions over which the organization has operational control were factored in.
METHOD	UNI EN ISO 14064-1:2019, UNI EN ISO 14067:2018 e UNI EN ISO 14069:2017	Data collection and GHG calculations were based on the approaches outlined in the technical standard UNI EN ISO 14064-1:2019 – Greenhouse gases – Part 1: Specification for the quantification, monitoring and reporting of organization emissions and removals

¹⁰ BARTHE M., FAVA J. JAMES, K. HARDWICK A. - KHAN, *Hotspots Analysis, An overarching methodological framework and guidance for product and sector level application*, pag 7: “A life cycle stage, process or elementary flow which accounts for a significant proportion of the impact of the functional unit” (Life Cycle Initiative, <https://www.lifecycleinitiative.org/library/hotspots-analysis-an-overarching-methodological-framework-and-guidance-for-product-and-sector-level-application/>)

The boundaries of the system mark out all the processes and materials covered by the impact assessment. In this survey, they covered the period 21 September to 24 September 2022, while the functional units, i.e. the units associated with all the inputs and outputs, are identified in the event.

The CF was calculated beforehand to define the expected impact and to identify mitigation measures, and then afterwards to confirm the impact actually avoided and the emissions actually caused by the event. Two types of data were used to quantify the CF:

- **Primary data** collected through interviews, questionnaires and supporting documents (e.g. invoices). Such data were collected:
 - Before the event
 - During the event (e.g. separate waste collection, meals, overnight stays)
 - Before and after the event (water and power consumption)
- **Secondary data** found by Ecoinvent, a databank of undisputed scientific relevance.

Data such as the attendees' travels to and around Assisi and dinners (meals that were not provided by the organisers) were left out of the survey, since the organisers had no way of controlling or monitoring them. Making assumptions or hypotheses about such data might have resulted in untruthful estimates in the overall Report, and that's why such data will not be processed and presented herein.

The collected data (inventorying) were eventually processed with the IPCC estimation method (2021) where the index is the Global Warming Potential (GWP) over a time span of 100 years. The GWP describes the impact in terms of radiative forcing following a pulse emission of a unit mass of a GHG versus an equivalent amount of carbon dioxide across a specific time span (100 years). In this Report, the Unit of Measurement of GWP is given in tons of CO₂ eq. So, such method may be used to calculate, in one and the same measurement, the environmental impacts of all the greenhouse gases from the EoF event.

3. DATA INVENTORY

3.1. SET-UP

Firstly, the measures taken by the Organising Committee, despite the many problems caused by the Covid-19 pandemic, which meant having to make changes and adapting to the circumstances, concerned the development of a sustainable set-up. The materials that were most commonly used for the event's set-up were wood and cardboard. Over 350 PEFC-certified pallets¹¹, were selected, which after the event were picked up a local company to be reused.

3.2. DISPOSABLE MATERIALS

In addition, the efforts to reduce the negative impact focussed on reducing the amount of disposable materials. At first the Committee had planned to get rid of all the disposable catering items and opt instead for washable, reusable solutions, but the health authorities demanded that meals be served in sealed containers and disposable cutlery be used. In accordance with such rules, the event organisers sourced UNI EN 13432:2002-certified biodegradable and compostable food containers and cutlery to serve the meals with. Such materials were collected as organic waste and then sent on to the composting facilities.

3.3. CATERING

As far as catering was concerned, it was decided that meal-based plates should be avoided and replaced with more environmentally-friendly solutions, so priority was given to greens, beans and cereals as the ingredients of all the meals. The meals were prepared by a specialist company, using, as instructed by the Committee:

1. Local ingredients grown in the seismic crater of Umbria, preferably organic ones;
2. Ingredients or produce grown on lands confiscated from organised crime.

In catering and in serving the meals, special care was taken of the “automatic food dispensers” too. All through the event, the attendees could drink water from special water dispensers directly connected to the water supply network in the reusable bottles they had received on the place. This remarkably cut down the production of plastic waste. Food vending machines were available to provide chocolate shortbread biscuits with chocolate chips, spelt shortbread biscuits and semi-wholegrain shortbread biscuits with chocolate chips, and the attendees received honey-based snacks to raise their awareness of the important issue of bees being endangered by climate change and pollution. Hot drinks were served in biodegradable, compostable cups and scoops, in compliance with UNI EN 13432:2002 standards. Such materials were collected as organic waste and then sent on to the composting facilities.

The eating area was set up with tables provided by local promotional agencies, to which they were returned after the event. Overall, 3,437 meals were served.

In addition, the Organising Committee summoned the students of the catering school, who, under the coordination of their teachers, served the meals and attended to the garbage area.

¹¹ <https://www.pefc.it/>

3.4. SEPARATE WASTE COLLECTION

Another major action was the implementation of separate waste collection with the help of volunteers. This took place in all the Villages as well as at the Palaeventi and at Teatro Lyrick, with the support of the waste management company, which did the following:

1. Supplied special waste containers in specific areas of the Palaeventi, Teatro Lyrick and the Villages
2. Upgraded the waste collection areas available across town by carefully placing additional outdoor bins to meet the requirements
3. Planned and carried out two collections a day on all three days of the event
4. Coordinated all collection and waste disposal operations

Table: Data on separate waste collection bins and locations

CONTAINERS	CARD AND CARDBOARD	PLASTICS	DRY WASTE	ORGANIC WASTE	ALUMINIUM AND TINPLATE	GLASS	TOTAL	WASTE COLLECTION AREAS
Palaeventi / Lyrick	11	5	5	11	5		37	8
Monte Frumentario – Village 1	2	1	1	2	1	1	8	1
Monte Frumentario - Village 1	2	1	1	2	1	1	8	1
Convent - Village 2	2	1	1	2	1	1	8	1
Convent - Village 2	2	1	1	2	1	1	8	1
Santuario della Spogliazione - Village 3	2	1	1	2	1	1	8	1
Basilica Santa Maria - Villaggio 4	2	1	1	2	1	1	8	1
Archivio Arcivescovile San Rufino - Village 5	2	1	1	2	1	1	8	1
Pro Civitate - Cittadella - Village 6	2	1	1	2	1	1	8	1
Town Hall - Village 7	2	1	1	2	1	1	8	1
Parrocchia Santa Maria - Village 8	2	1	1	2	1	1	8	1
Istituto Serafico - Village 9	2	1	1	2	1	1	8	1
Basilica Santa Chiara - Village 10	2	1	1	2	1	1	8	1
TOTAL	35	17	17	35	17	12	133	20

3.5. DIARY

Lastly, all attendees were given a diary in FSC -certified paper and a pen with a biodegradable outer body.

3.6. MONITORING CONSUMPTION

One of the Committee's actions that deserve to be mentioned is the monitoring of electricity and water consumption within the spatial-temporal and organisational horizons of the event. The development of a consumption "record" was key to a project that tended to control, improve and mitigate consumption. The approach was a primary measurement through an accurate reading of the electricity and water meters "before" and "after" the event. Such choice was regarded as the most appropriate to restrict the real consumption and avoid the environmental loads caused by the activities before or after the event, which are irrelevant and unrelated to it. The recorded electricity and water consumption is listed in the Table below.

PLACE	RESOURCE – POD/ METER	INITIAL READING	FINAL READING	CONSUMPTION
Teatro Lyrick: active energy taken	Electricity - IT001E0022478	2647,298	2653,652	6,354
Teatro Lyrick: reactive energy taken	Electricity - IT001E0022478	1075,77	1077,541	1,771
TOTALE				8,125
Palaeventi: active energy taken	Electricity - IT001E43376833	646,401	648,943	2,542
Palaeventi: reactive energy taken	Electricity - IT001E43376833	720,528	722,971	2,443
TOTAL				4,985
Monte Frumentario A1 +	Electricity - IT001E41567436	0	4,812	4,812
Monte Frumentario A2 +	Electricity - IT001E41567436	0	2,262	2,262
Monte Frumentario A3 +	Electricity - IT001E41567436	0	3,365	3,365
Monte Frumentario R1+	Electricity - IT001E41567436	0	0,288	0,288
Monte Frumentario R2+	Electricity - IT001E41567436	0	0,313	0,313
Monte Frumentario R3+	Electricity - IT001E41567436	0	0,571	0,571
TOTAL				11,611
ESTIMATED TOTAL FROM VILLAGES				69,666
* Consumption from the villages was estimated from accurate data recorded at Monte Frumentario which hosted two of them, since the other villages were hosted in facilities that had no dedicated meter				
TOTAL ELECTRICITY CONSUMPTION in kWh				82,776

PLACE	RESOURCE – POD/ METER	INITIAL READING	FINAL READING	CONSUMPTION
Palaeventi	Water - 200002585679	572	603	31
Teatro Lyrick	Water - 200002397872	17574	17622	48
Monte Frumentario	Water - 200002594506	280	281	1
ESTIMATED TOTAL FROM VILLAGES				6
* Consumption from the villages was estimated from accurate data recorded at Monte Frumentario which hosted two of them, since the other villages were hosted in facilities that had no dedicated meter				
TOTAL WATER CONSUMPTION in mc				85

Electricity consumption was recorded by the technicians of the Municipality of Assisi. Because of the mild weather conditions in which the event took place, very little air conditioning was used inside the facilities (e.g. Teatro Lyrick), causing a lower energy consumption than had been expected while planning the event.

4. RESULTS AND DISCUSSION


4.1. IMPACT ASSESSMENT


The results were distributed over the following cost centres: materials, electricity, water, waste and over-night stays. The 'Materials' category included all that concerned the set-up, the disposable items, the flasks and the gadgets (pens, notebooks, backpack)s. Before describing the relevant CF measures, the SDG Goals and the Laudato Si' Goals associated with each cost centre will be mentioned.

4.1.1 MATERIALS


4.1.1.1 SET-UP


Laudato Si' Goals:

 *Response to the Cry of the Earth*

 *Adoption of sustainable lifestyles*

SDG Goals:

 *GOAL 12 - Responsible consumption and production*

 *GOAL 13 - Climate action*

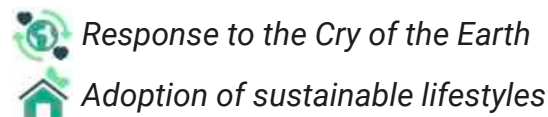
In the set-up of the event, reusable wooden pallets were chosen, which provided environmental benefits compared with emissions from traditional panels (Table 1). Reused after the event, the (PEFC-certified) wooden pallets saved 109,5658 tons of CO₂ eq compared to traditional panels.

Table 1: A comparison between reusable pallets and traditional panels in the sustainable set-up.

Palleted panels	Ton CO ₂ eq	7,4717
Traditional panels	Ton CO ₂ eq	117,0375
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-109,5658

4.1.2 DISPOSABLES AND FLASKS

Laudato Si' Goals:



SDG Goals:

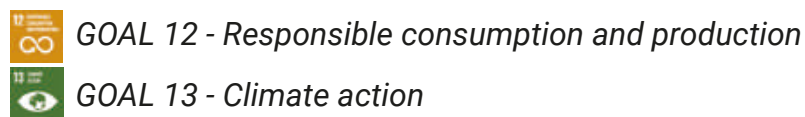


Table 2 shows the results of using biodegradable and compostable materials versus the results of using traditional plastics. Biodegradable and compostable products helped achieve a lower CF than the traditional ones, thus improving the performance of the event.

Table 2: A comparison between biodegradable and traditional materials

		EoF	TRADITIONAL	SAVED
Cutlery	Ton CO ₂ eq	0,1150	0,1850	-0,0700
Cups	Ton CO ₂ eq	0,6405	1,2820	-0,6415
Sticks/scoops	Ton CO ₂ eq	0,0050	0,0099	-0,0050
Lunch boxes	Ton CO ₂ eq	4,1101	5,0358	-0,9256
Cardboard boxes	Ton CO ₂ eq	0,3516	0,3516	0,0000
TOTAL EMISSIONS	Ton CO₂ eq	5,2222	6,8643	-1,6421

The Table below (Table 3) shows the benefits provided by using reusable water bottles (the environmental loads caused by the production of the reusable water bottles were offset and divided by the serviceable life of the bottle). Likewise, the impact of the PET bottles reflected the estimated average water consumption per day.

Table 3: A comparison between reusable water bottles and traditional disposable PET water bottles

500ml flasks	Ton CO ₂ eq	0,0017
500ml PET bottles	Ton CO ₂ eq	0,0919
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-0,0902

Table 4 lists the results from using a kit which included an FSC-certified paper notebook, a biodegradable pen and a cotton backpack versus the estimated results from using traditional materials. Once again, the savings in tons of CO₂ eq vs traditional alternative options are also included.

Table 4: A comparison between the sustainable kit and the traditional one

		EoF	TRADITIONAL	SAVED
Pen	Ton CO ₂ eq	0,0134	0,0164	-0,0030
Notebook	Ton CO ₂ eq	0,0449	0,0493	-0,0045
Backpack	Ton CO ₂ eq	0,2531	3,3572	-3,1041
TOTAL EMISSIONS	Ton CO₂ eq	0,3114	3,4229	-3,1115




Finally, the Table below lists details of the reusable cutlery (the environmental loads were offset over one year's serviceable life). Because of the pandemic conditions in which the event took place, such action could not be implemented, in compliance with the anti-Covid Directives. For the sake of correctness, such data were not included in the overall calculation of the total CF; it was only estimated so as to have a benchmark for any forthcoming event.

Table 5: A comparison between reusable cutlery and disposable plastic cutlery

Plastic cutlery	Ton CO ₂ eq	0,1850
Reusable cutlery	Ton CO ₂ eq	0,0092
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-0,1758

4.1.3 CATERING

Laudato Si' Goals:

-  Response to the Cry of the Earth
-  Response to the Cry of the Poor
-  Adoption of sustainable lifestyles

SDG Goals:




-  GOAL 2 - Zero hunger
-  GOAL 12 - Responsible consumption and production
-  GOAL 13 - Climate action

Table 6 shows the impact of the ingredients of the lunches, which, as we mentioned, were grown on lands confiscated from organised crime and on the seismic crater of Umbria or locally sourced. Overall, 3,437 meals were consumed.

Table 6: CF from catering


Traditional meal	Ton CO ₂ eq	4,1930
Sustainable meal	Ton CO ₂ eq	2,9733
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-1,2197

Note that the organic meals meant saving 1.2 tons of CO₂ eq.

The attention paid to the problem of food waste was paramount. All unused food was given to local charities that help disadvantaged people and families. Even if the purpose of the Report is not to measure the social and economic impacts, it seems important to highlight how many meals were donated. They were as many as 440. Note also that 120 of the unused cardboard food boxes were reused to make Christmas packages for the soup kitchens. This translated the organisation's social commitment into veritable action.

4.1.4 WASTE

Laudato Si' Goals:

 Adoption of sustainable lifestyles

 Ecological education

SDG Goals:


 GOAL 13 - Climate action

Table 7 states the results of separate waste collection, including the controlled handling of each type of waste, compared with the results of a hypothetical uncontrolled handling.

Table 7: CF from waste

Separated waste	Ton CO ₂ eq	2,2713
Unseparated waste	Ton CO ₂ eq	2,6792
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-0,4079

The 'heavy-duty', controlled waste collection proposed by the organisers led to save 0.40 tons of CO₂ eq. The statistics of waste separation are listed below. The overall rate of waste separation exceeds 90%, with 75% of it consisting of organic waste that is eventually composted.

Table 8: Statistics of waste separation

	CARD AND CARDBOARD	PLASTICS	DRY WASTE	ORGANIC WASTE	ALUMINIUM AND TINPLATE	GLASS	TOTAL
TOTAL KG	678,7000	44,0000	297,0000	3307,8571	34,1000	5,7600	4367,4171
%	15,5401%	1,0075%	6,8004%	75,7394%	0,7808%	0,1319%	100,0000 %

The above information has been argued from the following methodological steps:

1. Direct measurement of volumes at the Theatre and at the Palaeventi
2. Indirect measurement of volumes in the Villages. After the direct measurement of 7 Villages, a projection was made over all 12 of them
3. Application of a mean correction factor kg/cube metres provided by Ecocave to calculate the bulk quantities.

The organic waste factor reflected the following:

- a. Estimated mean weight/cube metres of 500 kg (plus or minus 600-700 kg).
- b. During the event, virtually all the organic waste included the compostable and biodegradable food service items complying with UNI EN 13432:2002. Due to the peculiar nature of most organic waste, the estimated waste had to be reduced by 50% off the weight mentioned at a., as instructed by CIC – Consorzio Italiano Compostatori (Italian Composters' Consortium).

4.1.5 OVERNIGHT STAYS

Laudato Si' Goals:

 Ecological spirituality

 Community resilience and empowerment

SDG Goals:



GOAL 11 - Sustainable Cities and Communities

The benefits of staying in accommodation facilities such as hostels and shelters are listed in Table 9 below.

Table 9: CF from overnight stays

Shelters	Ton CO ₂ eq	8,9120
Hotels	Ton CO ₂ eq	12,6717
TOTAL EMISSIONS SAVED	Ton CO₂ eq	-3,7597


While planning the attendees' overnight stays, the organisers tried to find the most sustainable accommodation facilities. Hostels and shelters were preferred over hotels (traditional accommodation facilities) that have a greater impact in terms of organisation and materials. The choice of such kind of accommodation also encouraged the sharing of the space among these young people and offered opportunities for socialisation even outside the main venues. The socialisation process was also encouraged by the choice of multiple rooms; in this specific case, 667 nights were spent in double rooms, 286 in triple rooms, 81 in quadruple rooms, and 454 in single rooms (Table 10). In addition to the positive social implication, the choice of multiple rooms reduced the environmental impact, compared with the choice of all-single rooms in other kinds of accommodation facilities.

Table 10: Details of the types of rooms in which the attendees spent the night


SUMMARY	
Overnight stays in single rooms	454
Overnight stays in double rooms	667
Overnight stays in triple rooms	286

4.1.6 ELECTRICITY AND WATER

Laudato Si' Goals

 Response to the Cry of the earth

SDG Goals:

 GOAL 13 - Climate action

Electricity and water consumption was carefully monitored. While defining and performing the event, no mitigation action was possible (e.g. using 100% renewable energy) as the venues already had their utilities in place and could not be managed by the organisers.

Table 11: CF from electricity and water consumption

Electricity	Ton CO ₂ eq	0,0415
Water	Ton CO ₂ eq	0,0000

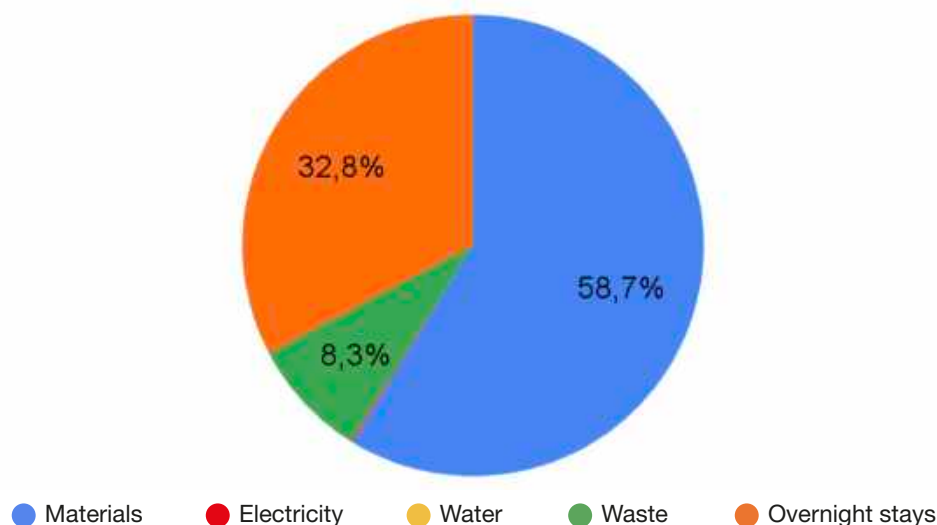
4.2 RESULTS, FORECASTS AND IMPACT MITIGATION

The recorded CF of the event is 27.20 Tons of CO₂ eq and factored in the following items.

Table 12

Materials	Ton CO ₂ eq	15,9802	58,7398%
Electricity	Ton CO ₂ eq	0,0415	0,1525%
Water	Ton CO ₂ eq	0,0000	0,0001%
Waste	Ton CO ₂ eq	2,2713	8,3488%
Overnight stays	Ton CO ₂ eq	8,9120	32,7587%
TOTAL EMISSIONS	Ton CO₂ eq	27,2050	

PERCENT RATES



The estimated measurement of the expected emissions plays a key role in the organisation of a sustainable event. On one hand, it helps check the data collection and monitoring procedures during and after the event, and on the other hand it helps predict how to manage any environmental criticality by preliminarily mitigating the extent of the impact through a careful adoption of remedial measures.

Here is an overview of the expected vs actual emissions, in terms of materials, electricity, transport, waste and the overnights stays of the young attendees and of all the staff involved in the event (Table 13).

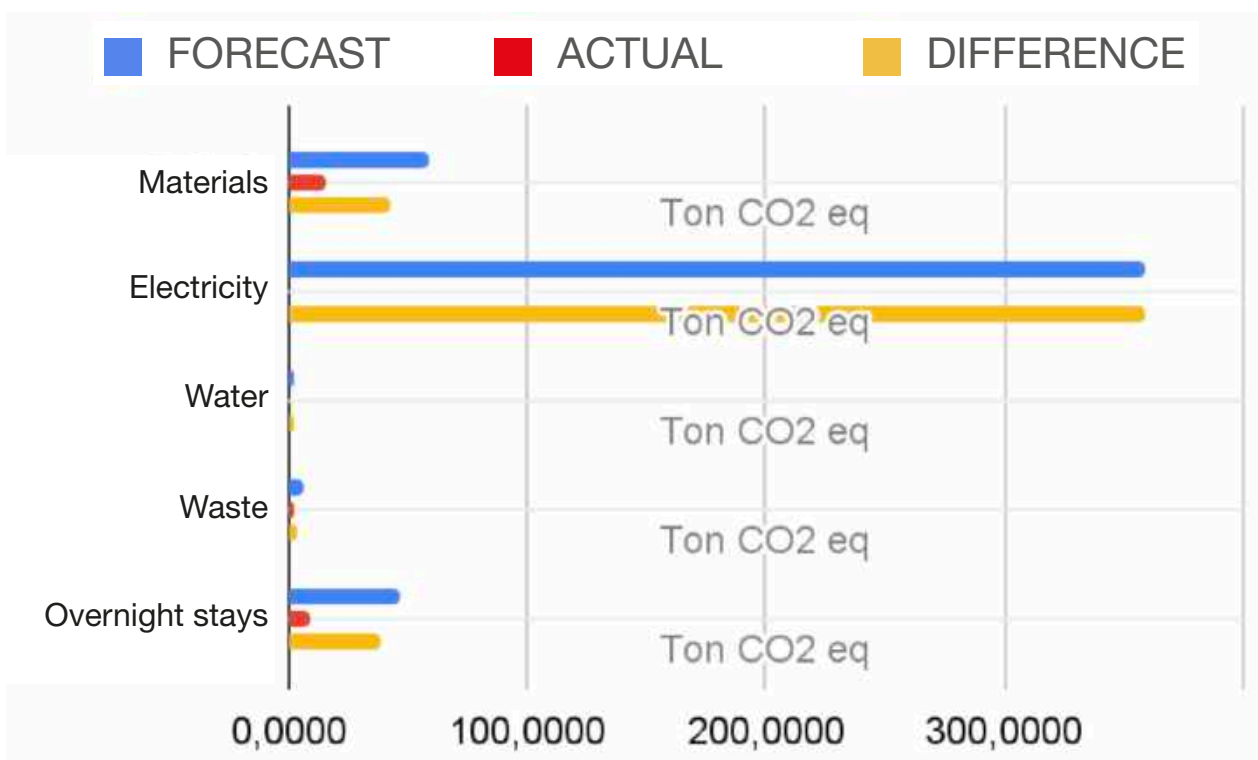
Such forecasts were based on the expected number of attendees, the materials they would consume and the waste they would produce. In addition, energy consumption in the venues was estimated on the basis of bibliographic records.

The final measured impacts were remarkably lower than the estimated ones, for these reasons:

- Real consumption happened in communal areas (rational use of electricity and limited use of air conditioning).
- Choice of accommodation facilities, i.e. hostels and shelters, which benefited the social component of the event.
- Effective mitigation choices, with the final Report showing a lower environmental load than the conservatively estimated one.
- Real separate waste collection rates.

Table 13: A comparison between expected and real emissions, including differences

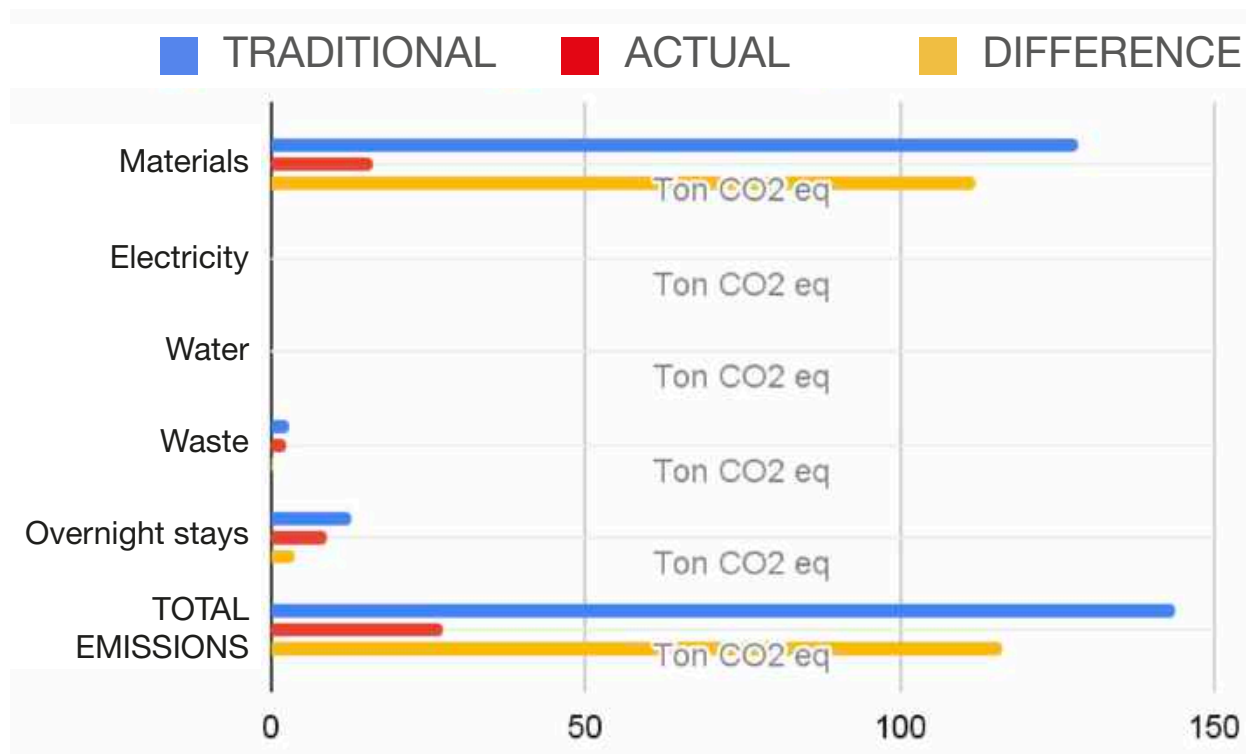
		ESTIMATED	FINAL	DIFFERENCE
Materials	Ton CO ₂ eq	58,3589	15,9802	42,3787
Electricity	Ton CO ₂ eq	358,5900	0,0415	358,5485
Water	Ton CO ₂ eq	2,3540	0,0000	2,3540
Waste	Ton CO ₂ eq	6,4465	2,2713	4,1752
Overnight stays	Ton CO ₂ eq	47,2396	8,9120	38,3276
TOTAL EMISSIONS	Ton CO₂ eq	472,9890	27,2050	445,7840



If a comparison between the estimated calculation (conservative estimate) and the final calculation of the real emissions showed a substantial positive difference in the CF, proving that the results of the choices made were even better than expected, the Table below (Table 14) compares the actual CF from the EoF with the CF that would have resulted from environmental cost centres equipped with more traditional options, i.e. non-low-impact options. Such comparison shows that the solutions implemented at the EoF, compared with the more traditional ones, saved 116 tons of CO₂ eq of GHG emissions.

Table 14

		TRADITIONAL	ESTIMATE	DIFFERENCE
Materials	Ton CO ₂ eq	128,1867	15,9802	112,2065
Electricity	Ton CO ₂ eq	0,0415	0,0415	0,0000
Water	Ton CO ₂ eq	0,0000	0,0000	0,0000
Waste	Ton CO ₂ eq	2,6792	2,2713	0,4079
Overnight stays	Ton CO ₂ eq	12,6717	8,9120	3,7597
TOTAL EMISSIONS	Ton CO₂ eq	143,5791	27,2050	116,3741



Lastly, the overall emissions over the period, sorted out by upstream and downstream emissions from the organisation and from the supply chain, according to UNI EN ISO 14069:2017, are shown below.

Supply chain emissions (processes upstream and downstream of the event)	Ton CO ₂ eq	27,1635
Direct emissions (electricity, water consumption)	Ton CO ₂ eq	0,0415

5. CONCLUSIONS

As far as the actual results are concerned, note that materials and overnight stays were the factors that weighed the most on the overall performance.

Of the 15.98 tons of CO₂ eq from the materials, the pallets accounted for 46%, the disposable products accounted for 32%, and the catering accounted for 19%. The results were impacted by the upstream processes for sourcing the raw materials, energy consumption from industrial processes, and intermediate means of transport.

Note, though, that such factor was properly mitigated at the design stage by saving 112 Tons of CO₂ eq, through the choice of biodegradable, compostable disposable products and a responsible supply chain, using:

- Certified products (FSC-certified pallets)
- Certified biodegradable, compostable products complying with UNI EN 13432:2002 to reduce the end-of-life impacts and so that all the plates, cups and cutlery could be disposed of into one single bin
- Local, organic and conventional foods, benefiting a short supply chain that reduces the environmental cost of having to transport the food. As well as the environmental impact, attention should be paid to social sustainability too by sourcing ingredients from the seismic crater of Umbria and from suppliers that work the land confiscated from organised crime

Another mitigating measure was the choice of accommodation facilities such as hostels and shelters to give priority to low-consumption, low-price facilities. Such choice led to save 3.7 tons of CO₂ eq.

This Report emphasises how environmental performance may be assessed from a Carbon Footprint perspective, by looking at the indicators that directly and indirectly affect the system's boundaries. Such assessment materialises in the inventorying of the environmental and economic cost centres and in the subsequent algorithmic modelling (IPCC). The estimates of the impacts were argued from the chosen mitigating measures, more sustainable than traditional solutions, which actually helped reduce the impact in terms of CF, as confirmed by the final results.

What was tried and tested at the event will provide a sound methodology, capable of preventatively identifying suitable mitigating measures to reduce and avoid the negative impacts of an event. Moreover, such methodology and the Good Practices put in place there may be taken as a landmark for other events as well.

6. REFERENCES

BARTHE M., FAVA J. JAMES, K. HARDWICK A., KHAN, S.. *Hotspots Analysis, An overarching methodological framework and guidance for product and sector level application*. UN Environment, 2017, pp 1-86 (Life Cycle Initiative, <https://www.lifecycleinitiative.org/library/hotspots-analysis-an-overarching-methodological-framework-and-guidance-for-product-and-sector-level-application/>).

HOLMES K., HUGHES M., MAIR, J., CARLSEN, J., *Events and Sustainability*. Routledge, Taylor & Francis Group, 2015, pp 1-202.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), *Climate Change 2021 The Physical Science Basis Summary for Policymakers*, 2021. Available on: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf .

ISO 14067:2018. *Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification*. Available on: <https://www.iso.org/standard/71206.html>

ISO 14064-1:2018 *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*. Available on: <https://www.iso.org/standard/66453.html>.

ISO 14064-2:2019 *Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*. Available on: <https://www.iso.org/standard/66454.html> .

LAING J. AND FROST W., *How green was my festival: exploring challenges and opportunities associated with staging green events*, in International Journal of Hospitality Management, 2010, 29 (2), 261–7.

SCHLENKER K., FOLEY C., GETZ D., *ENCORE festival and event evaluation kit: review and redevelopment*, 2010, Gold Coast, Queensland: Sustainable Tourism CRC.

UNITED NATIONS ENVIRONMENT PROGRAMME (UNPE), *Annual Report Seizing the green opportunity*, 2009 (<https://www.unep.org/resources/annual-report/unep-2009-annual-report>)

UNI EN 13432:2002 “*Requisiti per imballaggi recuperabili mediante compostaggio e biodegradazione*”. Available on: <https://store.uni.com/uni-en-13432-2002>.

WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (WCED), *Our common future*, Oxford University Press, 1987

