DECK

Developing Environmental Circular Knowledge

Deliverable 2.1

Report on environmental assessments

Co-funded by the European Union

Authors:

Sant'Anna School of Advanced Studies: Tiberio Daddi, Anna Elisabetta Merlini, Rachele Stranieri, Tiziana De Dominicis, Camilla Facheris (LCA Analysis)

DECK Working Group:

National Canoe and Kayak Federation of Italy (FICK)

Sant'Anna School of Advanced Studies (SSSA)

School of Sport & Salute Agency (SdS)

Hellenic Canoe-Kayak Federation (HCKF)

Canoe Federation of Slovenia (KZS)

Croatian Canoe Federation (HKS)

International Canoe Federation (ICF)

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Contact: sportsustainabilitygroup@santannapisa.it

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1. Introduction

1.1. DECK project- Developing Environmental Circular Knowledge

The DECK project (Developing Environmental Circular Knowledge) is co-funded by the European Union through the Erasmus + Sport programme. The project, launched in 2023 and led by the Italian Canoe and Kayak Federation as project coordinator, is in collaboration with the following partners: Institute of Management of the Scuola Superiore S. Anna (SSSA) as technical-scientific partner, School of Sport & Health Agency (SdS) as dissemination partner, the National Canoe and Kayak Federations of Greece, Slovenia and Croatia and the International Canoe Federation (ICF).

The main objective of DECK is to increase the awareness and to promote the adoption of environmental management and circular economy practices by sport key actors in order to improve sustainability during canoe and kayak competitions. DECK aims to foster the transition of the canoe and kayak sport towards circular economy through the leading role of involved national canoe and kayak federations (NFs) supporting the adoption of innovative environmental governance tools among participating NFs and the integration of leading-edge environmental practices in canoe and kayak competitions' operations. DECK aims also to reduce the environmental footprint of events and make them more sustainable promoting the adoption of environmental practices by participating canoe and kayak organisations.

1.2. Report on environmental assessment structure

This report represents the Deliverable 2.1 – "Report on environmental assessments" that is part of Work Package 2 "Environmental Assessment (Needs Analysis), Guidelines and Sustainability Rating Tool (SRT) development" of the DECK project. Specifically, this Report is the result of Tasks 2.1 "Environmental audits and LCA in kayak and canoe competitions and events (Operation)" and Task 2.2 "Organisational analysis of National Federations (Governance)", which involve assessing the state of the art (need analysis) of environmental management in canoe and kayak competitions and organisations. This needs analysis adopts a dual perspective:

- Operational Perspective - Task 2.1 aims to assess the environmental performance of canoe and kayak events by examining the operational management of environmentally relevant aspects (e.g. waste management, water use, energy consumption, etc.) in national and international canoe and kayak competitions in order to identify activities with the greatest environmental impact and identify possible solutions. To carry out the operational needs analysis 3 environmental on-site visits and 1 environmental footprint according to the LCA method were conducted for each NF.

- Governance perspective - Task 2.2 involves analysing the governance structures and mechanisms of national federations to identify areas of needs by suggesting improvements in terms of environmental governance and management procedures at the organisational level. The environmental governance needs analysis was carried out by conducting interviews on at least 4 roles/figures for each NF.

The results of this study supported the drafting of the "Guidelines for the environmental management of canoe and kayak events" (Deliverable 2.2), a collection of good environmental management practices focused on the sustainable management of canoe and kayak events and organisation.

2. Operational need analysis: Environmental on-site visits and LCA in kayak and canoe events

As part of Task 2.1 'Environmental audits and LCAs in kayak and canoe competitions and events', the state of the art of environmental management in canoe and kayak events was analysed from an operational point of view by conducting on-site visits to define the managemenent of environmental aspects in the main competition fields. This initial assessment aimed to identify the main 'hot spots' of the race courses (i.e. the most environmentally damaging operations or processes) and thus to outline opportunities for environmental improvement. Furthermore, as part of Task 2.1, an environmental footprint analysis based on a life cycle assessment (LCA) approach was carried out

for canoe and kayak events, in order to support partner organisations in identifying the activities with the greatest environmental impact and identifying possible solutions.

Specifically, each NF identified 3 kayak and canoe competitions (12 in total) to conduct environmental on-site visit and 1 competition to realise an environmental footprint analysis based on a Life Cycle Assessment (LCA).

2.1. Environmental on-site visits

This section focuses on the environmental on-site visits carried out as part of Task 2.1, aimed at analysing the environmental practices implemented and possible improvement opportunities of canoe and kayak events.

2.1.1. Methodology

Methodologically, first, a preliminary analysis of the environmental aspects was carried out through desk research, collecting preparatory documents prior to the assessment. Then, the actual assessments were conducted through one-day site visits. The visits were conducted by representatives of the project partner national federations with the support of researchers from the Sustainability Management research laboratory of the SSSA, based on a protocol drawn up by the SSSA. In order to obtain a more detailed picture of the state of the art of the operational management of the sports event, in some cases the on-site visits were combined with semi-structured interviews with the actors involved in the management of the events (e.g. members of the organising committee, coaches, etc.).

The structure of the protocol used is presented below, organised into 11 thematic sections (considering also Background information) covering the entire life cycle of a canoe and kayak event. Specifically, the environmental aspects and activities that were analysed are:

1. Background information
2. Accommodation for staff and athletes;
3. Mobility staff and athletes;
4. Use of materials;

5. Branding and merchandising materials;
6. Infrastructures;
7. Water management;
8. Energy management;
9. Food and beverages;
10. Waste management;
11. Biodiversity and natural capital.

Table 1: On-site visit Protocol summary

The protocol

The present protocol aims at guiding and supporting DECK project partners in conducting on-site visits during the selected sports events, and in the drafting of on-site visits reports. The protocol details the environmental aspects, activities and information that auditors should examine, take note of and disclose in the final report. The protocol is composed of eleven thematic sections:

A. Background information
B. Accommodation for staff and athletes
C. Mobility
D. Use of materials
E. Branding and merchandising materials
F. Infrastructures
G. Water management
H. Energy management
I. Food and beverages
J. Waste management
K. Biodiversity and natural capital

A. Background information

Please introduce the sport event and the location where it is held.

B. Accommodation for staff and athletes

Please take note of the following information with regard to the selection of accommodation facilities (e.g. hotels, bed & breakfast, hostels etc.) by the clubs' staff and athletes participating in the event:

C. Mobility

Please take note of the mobility modes and transportation means used by staff and athletes, as well as spectators, to reach the location of the event, as well those used to roam the location of the event on event-day. Describe the mobility options available to reach the site and ease/accessibility to reach the location by sustainable means of transport, also describing good practices implemented to reduce environmental impacts deriving from mobility and transportation.

D. Use of materials

Take note of and estimate the types and quantity of materials used for the sake of the event, distinguishing between sport equipment (e.g. boats, balls etc.) and other materials (e.g. promotional materials, cleaning etc.).

E. Branding and merchandising materials

Please take note of branding materials and other venue dressing materials present at the event location, as well as merchandising or gadgets sold or distributed at the event.

F. Infrastructures

Please take note of the main infrastructures utilized for the sake of the event, ranging from the competition field to tribunes, athletes' area, media and sponsors.

G. Water management

This section refers to water consumption. Please take note of the processes entailing the most consumption of water in the frame of the event (such as, cleaning of the canoes and other sport equipment, toilets and showers in the locker rooms, etc.).

H. Energy management

This section refers to energy consumption. Please take note of the processes entailing the most consumption of energy in the frame of the event (such as, lighting of the venue, heating or cooling, use of machineries if any, etc.).

I**. Food and beverages**

Please take note of how food and beverages are sold and distributed in the venue, possibly distinguishing between bars/kiosks operated by third-parties and catering services (e.g. canteen for athletes and staff) provided by contractors of the organizing committee or local club.

L. Waste management

Please take note of how waste is collected and managed within the venue, also describing how the organizing committee or local club interact with the municipal waste management company in the management of waste generated during the event.

M. Biodiversity and natural capital

Please describe the location of the event from the perspective of natural capital and biodiversity, specifying whether the location is inhabited by fauna, and whether it is located in the proximity of a protected area.

Each NF selected 3 events due to their scale and high relevance, as these are annual top competitions for the canoe and kayak disciplines, making a total of 12 events. In addition, sporting events were chosen that took place at different venues such as the sea, lakes, rivers and with different time frames (1 day, 2 days, 3 days, etc.). This made it possible to obtain a broad representation of the environmental practices adopted in different contexts and in events of different durations. The selected events covered by the environmental on-site visits are presented in the table below.

Table 2: Events

NATIONAL FEDERATION	DATE	EVENT	LOCATION	TYPE OF EVENT
ITALIAN CANOE KAYAK FEDERATION (FICK)	23/04/23	International Canoe Sprint Race	Milan	International Event
	29/04/23	International Canoe Slalom Race	Ivrea	International Event
	8-9-10/09/23	Finale Canoagiovani e Meeting delle Regioni	Caldonazzo	National Young Championship
CROATIAN CANOE FEDERATION (HKS)	27/05/23	Croatian Cup for youngs 2nd race	Rab	National Young Cup
	13-16/07/23	European Marathon Championships	Slavonski Brod	European Championships

	15-16/09/23	National Championships in Sprint for cadets, juniors, and seniors	Zagreb	National Championship
Canoe Federation of Slovenia (KZS)	15-18/06/23	ICF Canoe Slalom Word Cup	Ljubljana	World Cup
	03/09/23	Soška regata	Solkan	
	20/10/23	International Canoe Marathon Race	Ljubljana	International Event
Hellenic Canoe-Kayak Federation (HCKF)	7-9/7/23	ICF Stand Up Paddling (SUP) WORLD CUP	Crete-Agios Nikolaos	World Cup
	15-16/7/23	Hellenic National Championship Canoe-Kayak Sprint	Athens-Schinias	National Youth Championship
	14-16/9/23	Mediterranean Beach Games (Canoe Ocean Racing)	Crete-Heraklion	Mediterranean Games

As output of the evaluations carried out, 12 reports were drawn up (available in Appendix A). At the end of each report, the good environmental management practices already adopted during the event are highlighted, and possible improvement actions are suggested to improve the environmental management of similar future events, especially with regard to environmental aspects, where a lack of management with a view to sustainability was found.

2.1.2. Results

The level of awareness of the management of environmental aspects during events by organising committees varies according to the characteristics of each event (national, international, disciplines involved, etc). Although the environmental on-site visits conducted revealed good practices already adopted during canoe kayak competitions, opportunities for improvement were also identified in terms of reducing environmental impact throughout the event life cycle.

All the operational good practices identified in the management of the 12 canoe and kayak events assessed are gathered in Table 3, and the opportunities for improvement, i.e. good practices that could be implemented to reduce environmental impacts in the day-to-day management of the events, are gathered in Table 4.

The total of all good practices already implemented in the three events is 43, while the total of suggested opportunities for improvement is 34.

Table 3: Good Practice already in place

Environmental Aspect	Good Practice Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location.
Mobility	• Presence of bike racks. • Access to the venue forbidden to cars or other unauthorised motorised vehicles. • Venue can be reached by foot or by bike by promenade that connects the venue with the rest of the parts of the town. • Venue can be reached by public transport. The bus has a stop inside near the competition area. • Sharing information on the event webpage about the public transport (buses) available to reach competition venue from the airport. • Bicycles or e-scooter or walking are used by the visitors and coaches. • Mass transportation of athletes and boats by each club • Venue can be reached by train. • Access to the competition area is forbidden to cars or other unauthorised motorised vehicles. • Bus tickets are provided with the event ticket to incentivise the use of public transport to reach the venue from the city centre. • ICF staff is equipped with an electric car to travel from the hotel to the venue, a recharging column is located in the venue.
Use of materials	• No branded materials for the specific event. • Training programme for athletes and coaches to repair boats and paddles themselves. • Beach flags are reused at other events. • The sticks of all flags, even those specifically dedicated to the event, are reused in other events. • Reduced paper consumption for documents, information mostly uploaded online. • Boats and athletes/boat numbers are reused at other events.

Branding and merchandising materials	• No gadgets from sponsors and clubs. • No banner dedicated to the event. • Merchandising materials from previous competitions (e.g. t-shirts, glasses etc.) are sold in the venue instead of being disposed.
Infrastructures	• Only use of facilities already in place. • Permanent infrastructure used to its maximum.
Water management	• Activities to raise awareness on the use of plastic bottles and environmental issues. • Presence of drinking water stations. • Staff and athletes are provided with reusable bottles in order to reduce the use of single use plastic bottles in the venue. • Water-efficient washing machine.
Energy management	• Using water-filled barrels with ice to keep water bottles cool while saving on refrigerator energy consumption. • Use of local eco-friendly energy supplier company. • Purchase of energy from renewable sources.
Food and beverages activities	• Number of meals to be provided in advance to the catering service. • Use of reusable glasses and bottles at the local kiosks. • Vegetarian menu. • Use of reusable plates and cutlery at the local restaurant. • One machine in operation for ice-cube production for cooling the water in iceboxes • Reusable cups with a “give back” system based on a €2 deposit are used, instead of single-use plastic glasses. • Food is sourced locally and food waste is provided to biomass producers .
Waste management	• Presence of Sorting Waste System on the Island and sorting bins. • Placement of separate collection bins in areas where a separate collection system was absent. • Signage is located in proximity with trash bins to motivate spectators to separate waste.
Biodiversity and natural capital	• None or minimum impact on the area • Absence of in water impacting infrastructures on wildlife • 7.7 t of CO2 were offset through the action Forest FICK

Table 4; Good Practice Suggestions

Environmental Aspect	Good Practice Suggestion
Accommodation for staff and athletes	• A guideline for sustainable accommodation may be provided to teams to facilitate the choice of environmentally-friendly hotels by athletes, with recommendations on sustainable accommodation choices. • Exchanging information on green certified accommodation near the venue with the clubs.
Mobility	• Evaluate agreements with the local transport service to have discounts and promotions for athletes/spectators using this means. • Evaluate organising shuttles and joint transport for athletes/staff and equpment. Evaluate the possibility of buses organised by the federation. • Consider a service of e-mobility for rent.
Use of materials	• Evaluate the use of ecolabel detergents. • Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of boards and paddles. • Evaluate the use of numbers for competition in paper and ecological glue. • Evaluate the provision of sportswear for athletes that can be used in different competitions without reference to a specific competition. • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials).
Branding and merchandising materials	• Evaluate to avoid using single-use merchandising. • Evaluate the use of environmental criteria in the selection of merchandising (e.g. t-shirts made of recycled textile or organic cotton) and promotional materials (e.g. leaflets made from recycled or FSC-certified paper).
Infrastructures	• Evaluating the possibility of using screens as a means of launching environmental awareness messages.
Water management	• Evaluate the installation of more water fountains. • Evaluate to add public and free water stations to refill bottles. • Evaluate the installation of breakers (faucets aerators) at sinks.
Energy management	• Evaluate installing photovoltaic panels on club facilities.

	• Do not install a/c in open-air tents. • Evaluate the possibility to raise awareness of the venue owner to engage an eco-friendly system for energy self-production. • Evaluate the use of hydroelectric power to supply electricity in the venue.
Food and beverages activities	• Evaluate the reduction of plastic in general, to ask for reusable packaging, to give as a gift bottles that can be reused and brought with themselves. • Evaluate offering a catering service that operates according to environmental criteria. • Evaluate eliminating the delivery of plastic bottles to athletes. • Evaluate raising awareness of the use of water bottles to be refilled at the free refuelling system. • Evaluate the use of compostable cups in food and beverage area. • Improving vegetarian and vegan options in the menu of the catering services.
Waste management	• Evaluate to establish dialogue with the city to install waste bins on the venue. • Improving signage in proximity of the trash bins, with more detailed instructions on how to properly sort waste.
Biodiversity and natural capital	• Evaluate partnerships with universities and NGOs to raise awareness of the importance of biodiversity protection. • Evaluate to leave and to engage athlete, staff, volunteers, locals, ecc into awareness raising campaign about the importance of local biodiversity and natural capital. • Evaluate the location also through environmental criteria. • Evaluate to establish collaborations with the municipality to implement actions to adapt to climate change events such as droughts. • Evaluate collaborations with universities and the manager of the area to find solutions to eliminate invasive species (e.g. algae). • Carry out awareness raising initiatives with students on environmental and natural capital protection.

2.2. LCA in kayak and canoe events

Under Task 2.1, an environmental footprint analysis based on a Life Cycle Assessment (LCA) approach is to be carried out on one canoe and kayak competition per NF, in order to support partner organisations in identifying the most environmentally impactful activities and identifying possible solutions.

This report describes the environmental footprint of Canoe and Kayak competitions:

Table 5: Table of events subject to environmental footprinting

National Canoe and Kayak Federation/ Country	Canoe and Kayak Competition	Date
Italian	Caldonazzo (Finals National Youth Canoe Meeting, Regions and Paracanoe)	8/10 September 2023
Greek	33th Hellenic Canoe-Kayak Sprint National Championships Seniors/Juniors	21/23 July 2023
Croatian	Zagreb (National Championships in Sprint for cadets, juniors and seniors)	15/17 September 2023
Slovenian	Recreational Amateur Event	30 August 2023

The main aim of the study is to understand the most impactful processes, so-called “hotspots”, associated with the professional canoe and kayak competitions, in order to identify opportunities to lower the overall environmental footprint, by means of improvement actions.

The Environmental footprint is based on a Life Cycle Approach (LCA). The LCA assesses and quantifies the environmental impacts of a product or service over its entire life cycle. The main phases of an LCA are goal & scope setting, inventory analysis, life cycle impact assessment (LCIA), and interpretation. An inventory analysis provides information on all relevant energy and material inputs, and on the emission of toxic and non-toxic pollutants, but that alone does not provide

enough information to guide decision-making. To be able to understand the consequences of these inputs and emissions, we need to translate them into environmental impacts. The impact assessment phase provides this translation.

The specific methodology applied in the study is described in chapter 2.

2.2.1. Methodology

Life cycle assessment (LCA) is a methodology to assess the overall environmental burden associated to the whole life cycle of a product or service. Being quantitative, standardized and scientific, this methodology allows the production of reliable information about the environmental performance of a product and it overcomes some issues that might arise while focusing on a single life cycle phase, typically the production one. It is generally considered the most reliable tool to assess properly the sustainability of a product. Due to its overall life cycle perspective, LCA avoids:

- shifting the environmental burden from one life cycle phase to another,
- shifting the environmental burden from one impact category to another.

Simultaneously, LCA can help in:

- comparing different alternatives in the product life cycle (i.e., packaging solutions, logistics, energy sources, raw materials and supply chain processing, use phase and or end of life),
- identifying environmental "hotspots" (where “it matters most”), allowing the selection of effective actions aimed at lowering the environmental footprint of a product.

This methodology finds its roots in the late sixties and was applied mainly for energy efficiency purposes and the comparison of different scenarios for packaging material. It finally reached the goal of being declared an international standard published by the International Organization for Standardization (ISO) in the late nineties.

Today, LCA is defined in two ISO standards:

- ISO 14040:2006 - *Environmental management -- Life cycle assessment -- Principles and framework,*

- ISO 14044:2006 - *Environmental management -- Life cycle assessment -- Requirements and guidelines.*

The first standard included all the principles and main features of the methodology, whose technical requirements are defined in the second one.

In a nutshell, LCA allows to sum all the inputs and outputs taken from and released to the environment in all the activities and processes included in the whole life of a given product or service, and to evaluate the potential impact of such consumptions and releases on the environment.

Indeed, one of the first definitions of LCA (SETAC 1993[1]), was the following:

"*Life Cycle Assessment is a process to evaluate the environmental burdens associated with a product, process, or activity by identifying and quantifying energy and materials used and wastes released to the environment; to assess the impact of those energy and materials used and releases to the environment; and to identify and evaluate opportunities to affect environmental improvements*. *The assessment includes the entire life cycle of the product, process or activity, encompassing, extracting and processing raw materials; manufacturing, transportation and distribution; use, re-use, maintenance; recycling, and final disposal*".

LCA was conceived and designed to produce quantitative reliable scientific information to be used in decision making, increasing the awareness of companies and economic actors on the real burden and responsibilities of the product and service life cycles.

ISO 14040 defines LCA as the "compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle".

According to the ISO standard, the methodology encompasses 4 steps (Figure 1), and "*it can assist in*":

[1] LCA "Code of Practice" from the Society of Environmental Toxicology and Chemistry (SETAC) Workshop held at Sesimbra, Portugal 31 March - 3 April 1993.

- *identifying opportunities to improve the environmental performance of products at various points in their life cycle,*
- *informing decision-makers in industry, government or non-government organizations (e.g., for the purpose of strategic planning, priority setting, product or process design or redesign),*
- *the selection of relevant indicators of environmental performance, including measurement techniques, and*
- *marketing (e.g., implementing an Ecolabelling scheme, making an environmental claim, or producing an environmental product declaration).”*

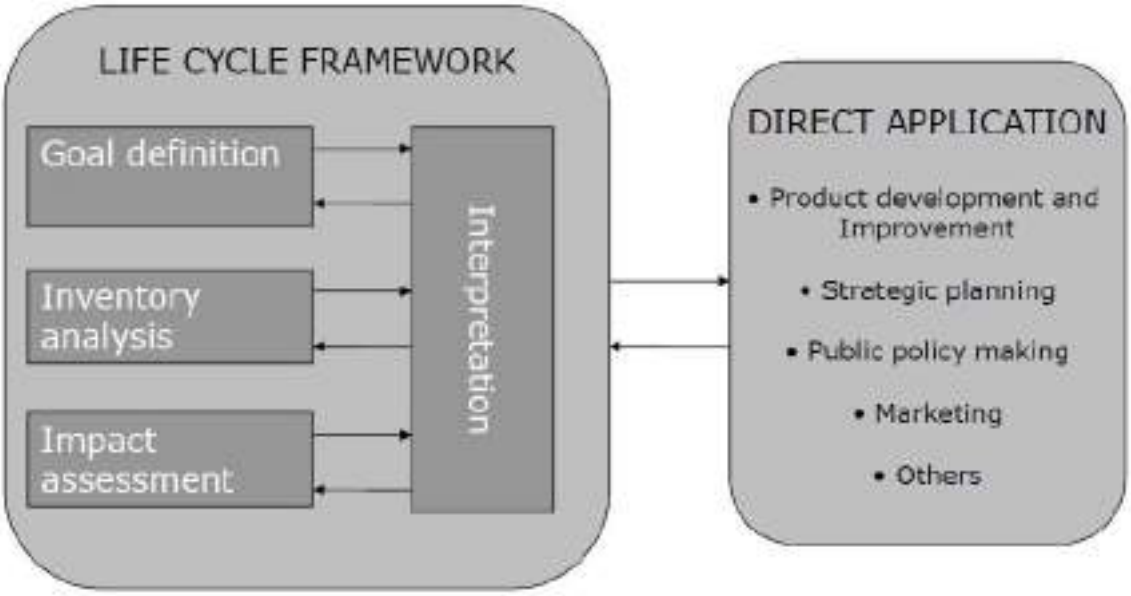

Figure 1: ISO 14040 Life cycle assessment diagram: methodology phases and application.

Another major application of LCA is marketing, particularly for affixing Environmental labels and declarations.

Following this path, the European Commission in 2013 published the Recommendation 179/2013/EC (now updated with the recommendation 2021-9332) “on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organizations”, the so-called PEF (Product Environmental Footprint) and OEF (Organization Environmental Footprint). The Recommendation contains the guidelines of the LCA

methodology to be applied to a product/service or to the activities carried out by an organization in order to communicate their potential life cycle environmental impact.

LCA is an iterative process, which consists of 4 main phases:

- goal and scope definition,
- inventory analysis (Life Cycle Inventory - LCI),
- impact assessment (Life Cycle Impact Assessment - LCIA),
- interpretation of the results.

Therefore, an LCA study starts with the definition of the goal of the study, the features of the system that needs to be studied and the requirements to be complied (goal and scope definition); then it moves to the compilation of the inventory of all the flows that are included in the life cycle of the product (Life Cycle Inventory, LCI); it subsequently evaluated the environmental impacts associated to the flows listed in the inventory (Life Cycle Impact Assessment, LCIA) and finally it draws the conclusions by interpreting the results and by producing a list of actions aimed at improving the overall environmental performance (life cycle interpretation).

2.2.2. Goal and scope of the study

Description of the goal and scope of the study

The goal and scope of this LCA study is to identify the environmental footprint of the professional sport Canoe and Kayak competitions with regards to Canoe Federations, in Italy, Greece, Croatia and Slovenia.

The **functional unit** (unit of analysis) of the study is the Canoe and kayak competition which include (for each of 4 events):

Table 6:Functional unit

	Italy	Greece	Croatia	Slovenia
Timeframe (days)	3	3	3	1
N° of athletes	1051	158	217	120
N° of Support staff (coach, trainers..)	367	15	53	177
N° of General Staff	170	43	25	45
Supporters	3200	50	20	130

The study is intended for internal analysis as an input for internal management of Canoe and Kayak National Federations to implement proper sustainability actions to reduce the overall environmental footprint of a canoe and kayak competition. Therefore, the main target audience will be Canoe and Kayak Federations and Clubs.

The **main findings of the study are reported in the last paragraph of this report**.

Compliance with PEF methodology

The current study is not intended to be fully compliant with all the requirements of the PEF methodology (Recommendation 179/2013/EC, now updated with the recommendation 2021-9332), indeed it was not available EF compliant secondary datasets.

The current study is based on and takes into account the Annex 1 Product Environmental Footprint Method of the Commission Recommendation of 16.12.2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations.

System boundaries, assumptions and limitations

The scope of the study is to assess the product environmental footprint of canoe and kayak events, considering for each the following system boundaries:

- production and end of life of temporary infrastructure, as well as the transport to the event site;
- energy, water consumption and others utilities associated to the sport competition processes;
- production and end of life of food and beverages associated to the sport competition (bars and kiosks and catering), included packaging consumed for the distribution;
- production and end of life of the staff and athletes' clothing and other perishable equipment (included transport of athletes' equipment like canoes, etc…);
- production of tickets and promotional material associated to the sport competition (paper, plastic, glass, metal..);
- waste generated during the competitions;
- transport of the supporters attending to the sport competitions (except for the slovenian event where not data were available);

- transport of the athletes and related technical staff;
- transport of the rest of the staff (organizers, volunteers, etc.);
- accommodation of athletes, support staff and supporters (except for the slovenian competition where there was no overnight stay).

The following processes are excluded from the boundaries of the study, according to the specific assumptions reported in the Lice Cycle Inventory section:

- capital goods production (only for permanent buildings and for the production of the temporary infrastructure used more than 100 times),
- production of sports equipment and other items used more than 100 times,
- supporters Mobility for the Slovenian event (due to lack of data),
- digital gadgets and tickets.

Selected EF impact categories

EF Impact categories represent the environmental problems of interest to which the results of the life cycle inventory analysis can be assigned.

An impact category indicator is defined as a quantifiable representation of an impact category.

Following are the impact categories included in the EF v3.1 method and considered in the analysis.

Table 7:List of impact categories of EF

Impact category	Indicator	Description
Acidification	molc H+ eq	This impact category measures the impact of acidifying substances on the environment. Emissions of NOx, NH3 and SOx result in the release of hydrogen ions when the gases are mineralised. Protons favor the acidification of soils and waters, if released in surfaces where the buffering capacity is low, with consequent deterioration of forests and acidification of lakes. It is measured in mol H+ eq.
Climate change – Total (GWP 100)	kg CO2 eq	Ability of a greenhouse gas to influence changes in global mean ground-level air temperature and subsequent changes in various climatic parameters and their effects. This impact category calculates the emission of greenhouse gases (GHG) from the oxidation and/or reduction of fossil fuels through their transformation or degradation. It is measured in kg CO2 eq

Impact category	Indicator	Description
Climate change - Biogenic (GWP 100)	kg CO2 eq	This impact category calculates the emission of greenhouse gases into the atmosphere from the oxidation and/or reduction of surface biomass through its transformation or degradation. It is measured in kg CO2 eq
Climate change - Fossil	kg CO2 eq	This impact category calculates the emission of greenhouse gases (GHG) from the oxidation and/or reduction of fossil fuels through their transformation or degradation. It is measured in kg CO2 eq
Climate change - Land use and transformation (GWP 100)	kg CO2 eq	This category calculates carbon uptake and emissions from changes in carbon stocks caused by land use and transformation. It is measured in kg CO2 eq
Ecotoxicity, freshwater	CTUe	This impact category evaluates toxic impacts on an ecosystem, which damage individual species and change ecosystem structure and function. Ecotoxicity is the result of a variety of different toxicological mechanisms caused by the release of substances with a direct effect on ecosystem health. It is measured in Comparative Toxic Units for Ecosystems (CTUe) which estimates the Potentially Affected Fraction of Species (PAF) integrated over time and volume per unit mass of a toxic chemical emitted (PAF m3yr/kg).
Particulate matter	Disease incidence	This impact category calculates the adverse effects on human health caused by emissions of particulate matter (PM) and its precursors (NOx , SOx , NH3). It is measured in disease incidence due to kg of PM2.5 emitted.
Eutrophication, marine	kg N eq	This impact category evaluates the effects on the aquatic ecosystem of eutrophication, which consists in the enrichment of the nutrients present in the aquatic environment by natural mutation or favored by urban, agricultural and industrial waste. It is measured in moles of nitrogen equivalent, one of the main "biostimulant" substances.
Eutrophication, freshwater	kg P eq	This impact category evaluates the effects on the aquatic ecosystem of eutrophication, which consists in the enrichment of the nutrients present in the aquatic environment by natural mutation or favored by urban, agricultural and industrial waste. It is measured in kg of equivalent phosphorus, one of the main "biostimulant" substances.

Impact category	Indicator	Description
Eutrophication, terrestrial	mol N eq	This impact category evaluates the effects on the terrestrial ecosystem of eutrophication, which consists in the enrichment of the nutrients present in the environment by natural mutation or favored by urban, agricultural and industrial waste. It is measured in moles of nitrogen equivalent, one of the main "biostimulant" substances.
Human toxicity, cancer	CTUh	This impact category calculates the potential negative effects on human health caused by the intake of toxic substances by inhalation of air, ingestion of food/water, skin penetration, insofar as they are carcinogenic substances. It is measured in comparative toxic units for humans (CTUh) and expresses the estimated increase in morbidity (percentage frequency of a disease in a community) in the total human population per unit mass of a chemical emitted (cases per kilogram).
Human toxicity, non-cancer	CTUh	This impact category calculates the negative effects on human health caused by the intake of toxic substances by inhalation of air, ingestion of food/water, skin penetration, insofar as they are non-carcinogenic substances not caused by particulate matter/smog caused by emissions of inorganic substances or by ionizing radiation. It is measured in comparative toxic units for humans (CTUh) and expresses the estimated increase in morbidity (percentage frequency of a disease in a community) in the total human population per unit mass of a chemical emitted (cases per kilogram).
Ionising radiation	kg U^{235} eq	This impact category takes into account the effects that ionizing radiation emitted into the environment has on human health. The unit of measure is kg of becquerels of Uranium 253 emitted into the atmosphere.
Land use	Dimensionless (Soil quality index)	This impact category considers land use and transformation with activities such as agriculture, road building, housing, mining, etc. Land occupation considers the effects of land use, the surface area concerned and the duration of its occupation (variations in quality multiplied by surface area and duration). Soil transformation considers the extent of the changes in soil properties and the area involved (changes in quality multiplied by the area).

Impact category	Indicator	Description
Ozone depletion	kg CFC-11 eq[1]	This impact category calculates the effects on human health associated with the degradation of stratospheric ozone due to emissions of ozone-depleting substances, such as long-lived gases containing chlorine and bromine (e.g. CFCs, HCFCs, halons). It is measured in kg CFC-11 eq
Photochemical ozone formation	kg NMVOC eq	This impact category evaluates the formation of tropospheric ground-level ozone caused by photochemical oxidation of volatile organic compounds (VOCs) and carbon monoxide (CO) in the presence of nitrogen oxides (NOx) and sunlight. High concentrations of ground-level tropospheric ozone are harmful to vegetation, human respiratory tracts and man-made materials through reaction with organic materials. It is measured in kg of NMVOC eq. (non-methane volatile organic compounds)
Resource use, fossils	MJ	Measures the depletion of fossil resources in terms of MJ.
Resource use, minerals and metals	kg Sb eq	It measures the depletion of mineral and metal resources in terms of kg of Antimony (Sb) equivalent.
Water use	m3 deprived	It measures the depletion of the water resource in terms of m3 of water consumed related to the local scarcity of this resource. It is measured in m3 of water.

2.2.3. Life Cycle Inventory analysis

The life cycle model has been designed in accordance with the system boundaries.

All the data have been collected directly by **Canoe and Kayak National Federations**, while all the life cycle secondary datasets used in the model belongs to the Ecoinvent 3.9 and Agribalyse databases.

The specific model assumptions, for each process included in the assessment, are reported in the following sub-sections of the report.

Timeframe

- **Italy**: the analysis includes a time frame of 3 days;
- **Greece**: the analysis includes a time frame of 3 days;
- **Croatia:** the analysis includes a time frame of 3 days;

- **Slovenia:** the analysis includes a time frame of 1 day.

Temporary infrastructure

Direct data for temporary infrastructure use during the Canoe and Kayak competitions, have been collected.

The entire life cycle was considered for infrastructure used less than 100 times, while for temporary infrastructure used more than 100 times, only transportation from/to place of origin, to/from the place of competition.

Energy and water consumption associated to the Canoe and Kayak competitions

For the production of electricity consumed (low voltage), the national grid mix has been applied;

Water consumed has been considered as tap water from municipal aqueduct.

Food and beverages

Direct and secondary data for food and beverages production quantities for spectators attending the Canoe and Kayak competitions, as well as the staff and athletes during the competition, have been collected.

Data refer to the following type of food distribution (with suppliers designated by the organizations):

- Catering;
- Bar;
- Food trucks;
- Supermarket;

The total amounts of food consumed were collected, including:

- For **Italy** – spratzle, gnocchi, pasta, meat, potatoes, vegetables, ice cream, bread, cakes;
- For **Greece** – sandwich (bread, turkey, cheese, tomato) and banana;
- For **Croatia** – soup, cereals, meat, pasta, rice, fruit and ice cream;
- For **Slovenia** – cookies and pasta;

From inventory data, the impacts of the following drinks have been analyzed:

- Water;
- Soft Drinks;

- Wine;
- Beer;
- Coffee.

Packaging for the distribution of food and beverage

Direct data for packaging materials for distribution of food and beverage have been collected and included in the assessment.

Data refer to the following type of packaging:

- Reusable;
- Disposable.

With reference to reusable packaging (more than 100 uses) have been evaluated PP reusable cups and in this case has been considered the only impact of washing and transport for/from the event, but not their production.

With reference to disposable packaging, mainly plastic and paper, has been calculated the entire life cycle.

Production and end of life of clothing and equipment items

Direct data for clothing and equipment quantities for the professional team and for volunteers and staff have been collected.

With reference to clothing (less than 100 uses) have been evaluated t-shirt, media vests, cap, rain jackets, hoodies, shorts, start number, safety pins.

With reference to sport equipment (canoes) used more than 100 times, has been considered the only impact of transport to/from the event, but not their production.

Ticket and promotional materials

Direct data for ticket and promotional materials have been collected.

In this section have been included the impacts of each element excluding digital vouchers.

Production of waste materials associated to the Canoe and Kayak competitions

Starting from the list of waste materials associated to a sport Canoe and Kayak competition, as reported in the check list provided by the Federations, the corresponding average production of

waste have been designed in the model, by using secondary datasets taken from Ecoinvent 3.9 database, mainly in the three categories of:

- incineration;
- landfill;
- recycling.

Mobility

In accordance with the information provided by the National Federations (attendance, distance, transportation means used), the transport has been modelled with secondary datasets taken from Ecoinvent 3.9 database, as follows:

Transport of athletes and direct staff

In this section have been calculated the a/r trips of each athlete and its support team, to/from place of competition, included travel on site.

The assumption was of five athletes per vehicle in case of use of the car (or the entire vehicle in case the number of person was less than five).

The main means of transport used by athletes and technical staff for all National Federations are private cars and private vans.

The provenance of athletes and support staff is 100% from EU.

Transport of general staff

In this section have been calculated the round trips to the race field, from the place of origin of people working at the event as general staff.

All workers reached the event by car or private car, except for the Italian National Federation for which 67% of people arrived by private car or van, 29% of people travelled by plane, 2% by train and the rest by other not relevant means.

Transport of supporters

In this section have been estimated the presence of supporters (total for the whole event) including:

- For Italy, 3,200 people;
- For Greece, 50 people;
- For Croatia, 20 people;

- For Slovenia, 130 people.

Accommodation

Direct data for accommodation have been collected and the guest*night impact was evaluated (except for Slovenian sport event where there was no overnight stay to consider) for:

- Athletes and direct staff;
- General staff;
- Supporters.

A Budget Hotel category has been chosen (using Ecoinvent v3.9 as dataset).

Circular Footprint Formula

All the recycled materials in input and all the waste streams have been modelled according to the PEF CFF (Circular Footprint Formula), which was specifically designed to properly balance the burdens and the credit of recycling operations.

This formula is composed by 3 parts:

- the material part;
- the energy part;
- the disposal part.

The first section of the "material" part of the Circular Footprint Formula (CFF) needs to be applied to input materials as follows:

$$\text{Material } (1 - R_1)E_V + R_1 \times \left(AE_{recycled} + (1 - A)E_V \times \frac{Q_{Sin}}{Q_p}\right)$$

where,

- R_1 (recycled content);
- A (allocation parameter) can be set at 0.2, 0.5 or 0.8 according to the market demand for secondary raw materials (0.2 for high demand, 0.8 for low demand, 0.5 for the other cases);
- Q_{sin}/Q_p (quality degradation ratio of the recycled material) is 1 or lower depending to the loss of quality after recycling operations;
- E_v are the specific emissions and resources consumed arising from the acquisition and pre-processing of virgin material;

- $E_{recycled}$ are the specific emissions and resources consumed arising from the recycling process of the recycled material, including collection, sorting and transportation process.

The second section of the "material" part of the Circular Footprint Formula (CFF) needs to be applied at the end of life, in case of recycling takes place as follows:

$$+(1-A)R_2 \times \left(E_{recyclingEoL} - E_V^* \times \frac{Q_{Sout}}{Q_P}\right)$$

where,

- R_2 is the recycling rate (% of the material which is bound to be recycled);
- A is the allocation parameter (it allocates the burden and benefit of recycling according to market demand for recycled materials);
- Q_{Sout}/Q_p is the quality degradation ratio of the recyclable material;
- E^*_v are the specific emissions and resources consumed arising from the acquisition and pre-processing of virgin material assumed to be substituted by recyclable materials (i.e., the "credits" for avoiding the use of virgin material);
- $E_{recyclingEol}$ are the specific emissions and resources consumed arising from the recycling process at EoL, including collection, sorting and transportation process (i.e., the "burdens" related to the recycling operations).

The energy section of the CFF refers to the incineration process taking place at the end of life of the disposed materials, according to the following formula:

$$\text{Energy } (1-B)R_3 \times (E_{ER} - LHV \times X_{ER,heat} \times E_{SE,heat} - LHV \times X_{ER,elec} \times E_{SE,elec})$$

where,

- R_3 is the incineration rate (% of the packaging material which is bound to be incinerated).
- B is the allocation parameter (it allocates the burden and benefit of incineration). In PEF studies the B value shall be equal to 0 as default;
- E_{ER} are the specific emissions and resources consumed arising from the energy recovery process (e.g., incineration with energy recovery, landfill with energy recovery, etc.);
- LHV is the Lower Heating Value of the material in the product that is used for energy recovery;
- $X_{ER,heat}$ and $X_{ER,elec}$ are the efficiency of the energy recovery process for both heat and electricity.;

- $E_{SE,heat}$ and $E_{SE,elec}$ are the specific emissions and resources consumed that would have arisen from the specific substituted energy source, heat and electricity respectively.

Finally, the last section of the CFF refers to the landfill process, according to the following formula:

$$\text{Disposal } (1 - R_2 - R_3) \times E_D$$

where,

- R_2 is the recycling rate (% of the packaging material which is bound to be recycled);
- R_3 is the incineration rate (% of the packaging material which is bound to beh incinerated);
- E_D are the specific emissions and resources consumed (per functional unit) arising from disposal of waste material at the EoL of the analyzed product, without energy recovery.

For the end-of-life scenario of each material, national statistics reported in the Annex C[2] for the PEF methodology have been applied.

Data collection overview

The following ***Table 8*** summarizes the data collection process.

Table 8 Data collection process summary

Life cycle stages	Data source used in the study
• Production, supply and maintenance of temporary infrastructure used for the Canoe and Kayak events.	• Specific data for consumption • Ecoinvent 3.9 datasets for the production process of the temporary infrastructure
• Energy and water, fuel, natural gas consumptions associated to the Canoe and Kayak events.	• Specific data for consumption • Ecoinvent 3.9 datasets for the production process of the supplied energy and water
• Production of Food and Beverages consumed during the Canoe and Kayak events.	• Specific data for consumption at bar and kiosks and catering • Ecoinvent 3.9 datasets for the production process of food and beverages
• Production of Packaging related to food and beverages consumed during the Canoe and Kayak events.	• Specific data for consumption • Ecoinvent 3.9 datasets for the production process of packaging materials related to food and beverages

[2] Environmental Footprint Category Rules Guidance – Annex C - Default values for EU Annex_C_V2.1_May2020)

Life cycle stages	Data source used in the study
• Production of staff clothing, sport apparel and transport of athletes' equipment.	• Specific data for consumption • Ecoinvent 3.9 datasets for the production process of the sport apparel and equipment materials
• Production of ticket and promotional gadget.	• Specific data for consumption • Ecoinvent 3.9 datasets for the production process of ticket and promotional gadget
• Transport of athletes and support staff.	• Specific data for a/r distance and mix of transportation means used • Ecoinvent 3.9 datasets for the life cycle impact of each means of transportation used
• Transport of the supporters attending the Canoe and Kayak events (except for Slovenian sport event).	• Specific data for a/r distance and mix of transportation means used • Ecoinvent 3.9 datasets for the life cycle impact of each means of transportation used
• Transport of general staff.	• Specific data for a/r distance and mix of transportation means used • Ecoinvent 3.9 datasets for the life cycle impact of each means of transportation used
• Accommodation of athletes, support staff, general staff and supporters (except for Slovenian sport event).	• Specific data for accommodation (number of nights) • Ecoinvent 3.9 datasets for the impact of a night in a Budget Hotel
• End of life waste streams.	• Specific data for waste generation • Ecoinvent 3.9 datasets for recycling, incineration with energy recovery and landfill, according to the CFF formula

The Inventory for the LCA study is reported in the ***Annex 2.***

Data quality

A qualitative assessment of the quality of the data used in the LCA model was done according to expert judgement assessment, as reported in the next ***Table 9.***

Table 9: Data quality rating: classification criteria.

Data quality rating	Criteria	Datasets for Italy	Datasets for Greece	Datasets for Croatia	Datasets for Slovenia

Excellent	Primary data collected specifically for the current study. Specific background Datasets – top quality	Electricity consumed;	Electricity consumed;	Electricity consumed;	Electricity consumed;
Very good	Primary data collected specifically for the current study. Generic background Datasets – very good quality	Water consumed; Fuel and Oil;	Water consumed; Fuel and Oil;	Water consumed; Fuel and Oil;	Water consumed; Fuel and Oil;
Good	Primary data collected specifically for the current study (scenarios) Generic background Datasets – good quality	Temporary Infrastructure; Temporary Infrastructure Maintenance; Packaging F&B; Equipment & clothing; Ticket & Promotional materials; Mobility; Accommodation.	Temporary Infrastructure; Temporary Infrastructure Maintenance; Packaging F&B; Equipment & clothing; Ticket & Promotional materials; Mobility; Accommodation.	Temporary Infrastructure; Temporary Infrastructure Maintenance; Packaging F&B; Equipment & clothing; Ticket & Promotional materials; Mobility; Accommodation.	Temporary Infrastructure; Temporary Infrastructure Maintenance; Packaging F&B; Equipment & clothing; Ticket & Promotional materials; Mobility (athletes); Accommodation.
Fair	Secondary datasets – Generic background Datasets, not specific – Fair quality	Waste treatment Food and Beverages.	Waste treatment Food and Beverages.	Waste treatment Food and Beverages.	General staff mobility; Waste treatment; Food and Beverages.
Poor	Secondary proxy data-not primary data collected-Generic background Datasets - poor quality	----	----	----	----

The assessment shows that 90% of impacts are defined by **at least good data quality** for Italy, Greece and Croatia and 86% for Slovenia.

2.2.4. Life Cycle Impact assessment

The PEF results are calculated with the LCA software SimaPro 9.5.0.0 and the Environmental Footprint (EF 3.1) method (developed for the EF transition phase) adapted[3] by the SimaPro 9.5.0.0 software provider, in order to make it compatible with other datasets provided in SimaPro.

[3] The method was originally developed to be used with EF-compliant datasets, which use the nomenclature of the ILCD flow list, and it has been adapted by means of the alignment of the flow names with SimaPro nomenclature, the removal of the flows not used by SimaPro libraries, such as regionalized land use flows.

EF 3.1 method is the impact assessment method of the initiative of the European Commission. The method includes characterization, normalization and weighting factors.

These factors are reported in the Annex 1.

The aim of impact assessment phase is grouping and aggregating the inventoried elementary flows data according to the respective contributions to each impact category. This first step of the impact assessment phase, that is grouping, is defined as “classification”; while the second step, that is aggregating according to the relative contribution, is called “characterization” and the single weights of each elementary flow contributing to a given impact category is therefore named “characterization factor”.

Characterization allows to calculate the total impact category score for each impact category and to report it with a single unit: the impact category indicator (for instance, for Climate Change, kg of CO_2 equivalent is the impact category indicator).

Environmental footprint results

This section includes the characterized results for all the 19 environmental footprint impact categories, with the details of each life cycle phase considered in the current study.

The following ***Table 4*** includes the Characterized results for each Canoe and kayak competition; among which it is possible to highlight the Climate Change impact category representing the Carbon Footprint of this study and the Water Use, indicator of the relative amount of water consumption, based on regionalized water scarcity factors:

Table 10: Characterized results for Canoe and Kayak competitions

Environmental Footprint Impact Category	Unit	ITALY	GREECE	CROATIA	SLOVENIA
Acidification	mol H+ eq	2.75E+03	1.38E+02	8.83E+01	1.73E+01
Climate change	kg CO2 eq	6.53E+05	3.43E+04	1.81E+04	2.62E+03
Climate change - Biogenic	kg CO2 eq	3.10E+04	2.24E+03	6.19E+02	1.49E+01
Climate change - Fossil	kg CO2 eq	6.14E+05	3.16E+04	1.71E+04	2.48E+03
Climate change - Land use and LU change	kg CO2 eq	7.92E+03	4.02E+02	3.16E+02	3.62E+01
Ecotoxicity, freshwater	CTUe	5.02E+06	2.79E+05	1.43E+05	2.02E+04
Particulate matter	disease inc.	3.37E-02	2.03E-03	1.36E-03	1.67E-04
Eutrophication, marine	kg N eq	1.15E+03	5.64E+01	3.40E+01	8.93E+00
Eutrophication, freshwater	kg P eq	1.49E+02	1.31E+01	4.80E+00	6.36E-01
Eutrophication, terrestrial	mol N eq	9.24E+03	3.82E+02	3.03E+02	6.09E+01
Human toxicity, cancer	CTUh	5.56E-04	3.65E-05	1.97E-05	2.15E-06
Human toxicity, non-cancer	CTUh	7.95E-03	3.94E-04	1.85E-04	3.71E-05
Ionising radiation	kBq U-235 eq	2.21E+04	9.74E+02	8.36E+02	1.95E+02
Land use	Pt	6.36E+06	4.06E+05	1.62E+05	6.92E+04
Ozone depletion	kg CFC11 eq	1.25E-02	1.13E-03	5.16E-04	6.85E-04
Photochemical ozone formation	kg NMVOC eq	3.05E+03	1.34E+02	9.68E+01	1.37E+01
Resource use, fossils	MJ	7.68E+06	3.75E+05	2.26E+05	3.69E+04
Resource use, minerals and metals	kg Sb eq	4.54E+00	2.98E-01	1.17E-01	1.58E-02
Water use	m3 depriv.	2.60E+05	1.83E+04	6.12E+03	5.49E+03

The following ***Tables 11 (Italy), 11a (Greece), 11b (Croatia), 11c (Slovenia)*** beside the total impact for each National Federations, include also the Characterized results for each life cycle stage, while the ***Tables 12 (Italy), 12a (Greece). 13b (Croatia), 14c (Slovenia)*** show the impact contributions of the individual phases considered, expressed as a percentage. Highlighting in yellow, the relevant life cycle stages which are those impact categories that together contribute to at least 80% of the single overall score.

➢ Italian Federation: Caldonazzo - Finals National Youth Canoe Meeting, Regions and Paracanoe - 8/10 September 2023

Table 11: (Italy) Characterized results for Italian Canoe and kayak competition

EF Impact Category	Unit	Total	Infrastructure Maintenance	Water	Natural Gas	Electricity	Benzina	Food&Beverage	Packaging	Equipment &Clothing	Ticket& Accreditation	Promotional Material& signage	Waste	Mobility	Accommodation
Acidification	mol H+ eq	2.75E+03	2.52E-01	1.18E-01	3.09E-01	2.26E+00	4.34E+00	9.02E+01	3.50E+00	2.51E+02	1.20E-02	1.89E+01	-8.01E-02	1.57E-03	8.04E+02
Climate change	kg CO2 eq	9.53E+05	9.21E+01	3.16E+01	8.72E+03	7.04E+03	5.99E+02	8.18E+04	1.23E+04	8.63E+04	1.03E+03	2.96E+04	2.40E+01	3.80E+03	1.85E+05
Climate change - Biogenic	kg CO2 eq	5.10E+04	1.92E-01	8.07E-01	7.58E-02	1.97E+00	2.64E-01	2.78E+03	4.80E+00	5.64E+00	2.99E-02	1.52E+01	5.97E+01	2.04E+01	2.75E+04
Climate change - Fossil	kg CO2 eq	9.14E+05	4.01E+01	2.13E+01	8.72E+02	7.03E+02	5.33E+02	4.75E+03	1.15E+05	8.45E+04	1.97E+00	2.93E+03	-9.56E+01	3.88E+03	1.51E+05
Climate change - Land use and LU change	kg CO2 eq	7.91E+05	1.17E+01	5.75E-01	5.75E-02	1.04E-01	1.14E+00	1.62E+03	4.51E+01	3.72E+00	5.62E-02	2.18E+01	-2.44E-02	1.59E+01	8.06E+03
Ecotoxicity, freshwater	CTUe	5.02E+06	2.45E+05	9.87E+01	2.81E+03	1.80E+03	2.94E+03	5.23E+04	1.10E+04	3.72E+05	1.52E+01	1.68E+04	5.71E+03	2.73E+06	1.83E+06
Particulate matter	disease inc	3.37E-03	2.85E-06	1.21E-06	1.78E-06	1.10E-05	1.18E-05	6.74E-04	3.49E-05	6.58E-05	2.99E-07	3.41E-04	-7.31E-07	1.30E-03	1.31E-03
Eutrophication, marine	kg N eq	1.15E+03	1.60E-01	2.29E-02	9.47E-02	4.10E-01	2.35E+00	4.62E+01	1.89E+00	1.05E+02	3.38E-02	6.88E+00	1.79E-01	5.09E+01	4.81E+02
Eutrophication, freshwater	kg P eq	1.40E+01	1.31E-02	1.41E-02	1.26E-03	1.19E-01	5.10E-02	2.06E+00	3.94E-01	9.49E-01	1.10E-03	1.81E+00	-2.40E-03	4.26E-01	1.81E+02
Eutrophication, terrestrial	mol N eq	9.31E+03	7.20E-01	3.22E-01	1.02E+00	4.54E+00	2.69E+01	6.22E+02	9.80E+00	1.18E+03	6.08E-02	1.36E+01	2.72E-01	5.97E+03	2.23E+03
Human toxicity, cancer	CTUh	3.59E-04	8.23E-08	5.50E-08	8.47E-08	2.03E-07	2.69E-07	4.97E-06	8.63E-07	8.76E-05	1.87E-09	5.13E-06	3.37E-10	2.02E-04	3.56E-04
Human toxicity, non-cancer	CTUh	7.85E-03	7.30E-07	1.24E-06	7.75E-07	7.17E-06	2.04E-06	1.51E-04	1.13E-05	1.33E-04	3.32E-08	4.61E-05	-1.62E-07	4.66E-03	2.99E-03
Ionising radiation	kBq U-235 e	2.21E+04	2.04E+00	8.17E+00	5.93E+00	8.45E+01	2.08E+01	5.10E+03	7.10E+03	3.75E+02	5.47E-01	1.09E+02	1.60E+00	1.15E+04	8.76E+03
Land use	Pt	8.56E+06	1.27E+05	8.42E+01	1.50E+03	1.80E+03	4.61E+03	4.76E+05	8.54E+05	4.80E+04	1.95E+01	1.43E+04	-2.03E+05	1.40E+06	4.40E+06
Ozone depletion	kg CFC11 eq	1.25E-03	2.67E-06	6.09E-07	1.63E-05	1.68E-05	1.04E-05	6.77E-04	3.85E-05	1.58E-03	9.24E-08	1.49E-04	-2.23E-04	8.06E-03	3.33E-03
Photochemical ozone formation	kg NMVOC	3.05E+03	2.33E-01	8.05E-02	6.49E-01	1.98E+00	6.85E+00	3.87E+01	3.45E+00	4.24E+02	1.11E-02	1.08E+01	-5.17E-02	1.09E+03	5.64E+03
Resource use, fossils	MJ	7.66E+06	7.64E+02	3.86E+02	5.33E+03	1.55E+04	6.86E+03	1.31E+05	1.79E+04	8.51E+05	2.10E+01	3.31E+04	-1.60E+02	5.21E+06	1.43E+06
Resource use, minerals and metals	kg Sb eq	0.50E+00	0.00E+00	3.16E-01	6.71E-01	6.95E-03	8.02E-01	1.46E-02	9.30E-03	1.02E-02	1.12E-05	6.30E-03	-6.23E-01	1.75E+00	2.04E+00
Water use	m3 depriv.	1.60E+05	5.72E+01	2.95E+00	8.51E+00	1.97E+02	3.77E+01	1.80E+04	1.72E+02	1.12E+03	1.72E+00	3.77E+03	-6.47E+01	1.58E+04	2.09E+03

Table 12: Life cycle stage percentage impact contributions per impact category

EF Impact Category	Unit	Infrastructure Maintenance	Water	Natural Gas	Electricity	Benzina	Food&Beverage	Packaging	Equipment &Clothing	Ticket& Accreditation	Promotional Material& signage	Waste	Mobility	Accommodation
Acidification	mol H+ eq	0.01%	0.00%	0.01%	0.08%	0.16%	3.61%	0.13%	9.13%	0.00%	0.72%	0.00%	56.89%	29.21%
Climate change	kg CO2 eq	0.01%	0.00%	0.06%	0.11%	0.09%	1.41%	0.16%	9.85%	0.00%	0.45%	0.00%	59.50%	28.34%
Climate change - Biogenic	kg CO2 eq	0.00%	0.00%	0.00%	0.01%	0.00%	8.98%	0.01%	0.02%	0.00%	0.05%	0.19%	0.66%	90.10%
Climate change - Fossil	kg CO2 eq	0.01%	0.00%	0.08%	0.11%	0.09%	0.78%	0.19%	10.47%	0.00%	0.48%	-0.01%	63.22%	24.60%
Climate change - Land use and L	kg CO2 eq	0.15%	0.00%	0.00%	0.00%	0.01%	10.44%	0.57%	0.05%	0.00%	0.27%	0.00%	2.02%	76.50%
Ecotoxicity, freshwater	CTUe	0.05%	0.00%	0.01%	0.03%	0.06%	1.04%	0.22%	7.41%	0.00%	0.33%	0.01%	54.41%	36.42%
Particulate matter	disease inc	0.01%	0.00%	0.01%	0.05%	0.03%	2.00%	0.10%	19.53%	0.00%	0.72%	0.00%	58.46%	19.11%
Eutrophication, marine	kg N eq	0.01%	0.00%	0.01%	0.04%	0.10%	4.03%	0.16%	9.12%	0.00%	0.60%	0.01%	43.96%	41.86%
Eutrophication, freshwater	kg P eq	0.01%	0.01%	0.01%	0.09%	0.03%	1.40%	0.24%	0.57%	0.00%	0.88%	0.00%	29.41%	67.35%
Eutrophication, terrestrial	mol N eq	0.01%	0.00%	0.01%	0.05%	0.16%	4.36%	0.11%	12.27%	0.00%	0.45%	0.00%	58.10%	24.17%
Human toxicity, cancer	CTUh	0.01%	0.02%	0.02%	0.04%	0.05%	0.79%	0.12%	19.78%	0.00%	0.36%	0.00%	56.28%	18.38%
Human toxicity, non-cancer	CTUh	0.01%	0.02%	0.01%	0.09%	0.03%	1.90%	0.14%	1.68%	0.00%	0.61%	0.00%	57.92%	37.60%
Ionising radiation	kBq U-235 e	0.01%	0.04%	0.03%	0.25%	0.09%	14.47%	0.32%	1.70%	0.00%	0.50%	0.01%	51.92%	30.63%
Land use	Pt	0.01%	0.00%	0.00%	0.03%	0.07%	7.88%	0.13%	0.75%	0.00%	0.22%	-0.03%	12.01%	69.30%
Ozone depletion	kg CFC11 eq	0.01%	0.00%	0.13%	0.14%	0.08%	5.44%	0.31%	11.11%	0.00%	1.19%	-1.79%	64.69%	18.68%
Photochemical ozone formation	kg NMVOC e	0.01%	0.00%	0.03%	0.06%	0.23%	1.27%	0.11%	14.26%	0.00%	0.35%	0.30%	65.18%	18.50%
Resource use, fossils	MJ	0.01%	0.01%	0.07%	0.14%	0.09%	1.57%	0.23%	11.09%	0.00%	0.41%	-0.02%	67.79%	18.63%
Resource use, minerals and meta	kg Sb eq	0.01%	0.00%	0.01%	0.11%	0.01%	0.36%	0.11%	0.23%	0.00%	0.15%	-0.01%	54.07%	44.95%
Water use	m3 depriv.	0.02%	1.15%	0.00%	0.08%	0.01%	7.06%	0.10%	0.45%	0.00%	1.45%	-0.02%	9.17%	80.55%

➢ Greek Federation: 33th Hellenic Canoe - Kayak Sprint National Championships Seniors/Juniors - 21/23 July 2023

Table 11 a: (Greece) Characterized results for Greek Canoe and Kayak competition

EF Impact Category	Unit	Total	Temporary Infrastructure	Infrastructure Maintenance	Electricity	Water	Fuel and Oil	Food&Beverage	Packaging	Equipment&Clothing	Promotional Material& gadget	waste	Mobility	Accommodation
Acidification	mol H+ eq	1.38E+02	8.55E-01	8.96E-01	1.02E+00	5.04E-02	1.19E+01	3.56E+00	1.03E-02	1.18E+01	8.87E-01	9.34E-02	4.34E+01	6.46E+01
Climate change	kg CO2 eq	3.43E+04	6.74E+01	8.44E+01	2.27E+02	9.27E+00	1.34E+03	3.55E+02	2.37E+00	2.97E+03	2.01E+02	1.93E+02	1.49E+04	1.40E+04
Climate change - Biogenic	kg CO2 eq	2.24E+03	8.57E-01	4.43E-01	4.06E-01	3.46E-02	5.68E-01	2.66E+01	1.06E-02	7.08E-01	3.62E+00	1.68E+02	7.48E+00	2.03E+03
Climate change - Fossil	kg CO2 eq	3.16E+04	6.64E+01	7.97E+01	2.27E+02	9.21E+00	1.33E+03	3.25E+02	2.35E+00	2.97E+03	1.97E+02	2.57E+01	1.49E+04	1.16E+04
Climate change - Land use and LU c	kg CO2 eq	4.02E+02	1.15E-01	1.52E+01	9.93E-02	1.01E-02	2.75E+00	5.37E+00	1.41E-02	3.00E-01	1.85E-01	-6.17E-03	6.32E+00	3.75E+02
Ecotoxicity, freshwater	CTUe	2.79E+05	3.70E+03	2.01E+03	8.25E+02	4.23E+01	7.05E+03	1.92E+03	8.50E+00	1.71E+04	1.13E+03	8.51E+03	1.16E+05	1.31E+05
Particulate matter	disease inc.	2.02E-03	5.12E-06	8.29E-06	8.81E-06	5.23E-07	2.82E-05	2.76E-05	9.90E-08	2.99E-04	1.47E-05	2.83E-06	6.79E-04	9.68E-04
Eutrophication, marine	kg N eq	3.64E+01	6.92E-02	2.03E-01	1.87E-01	9.88E-03	5.41E+00	1.10E+00	2.22E-03	4.76E+00	2.00E-01	1.77E-01	8.91E+00	3.90E+01
Eutrophication, freshwater	kg P eq	1.81E+01	2.48E-02	2.67E-02	2.13E-01	6.11E-04	1.25E-01	1.02E-01	7.88E-04	7.38E-02	7.88E-02	2.96E-03	1.96E+00	1.04E+01
Eutrophication, terrestrial	mol N eq	3.82E+02	7.16E-01	1.05E+00	1.29E+00	9.43E-02	5.87E+01	1.33E+01	2.18E-02	5.17E+01	2.07E+00	5.66E-01	9.21E+01	1.61E+02
Human toxicity, cancer	CTUh	3.65E-05	2.03E-07	9.85E-08	7.06E-08	4.07E-08	6.45E-07	1.97E-07	7.85E-10	3.96E-06	8.49E-07	1.04E-08	1.16E-05	1.88E-05
Human toxicity, non-cancer	CTUh	5.94E-04	1.15E-06	1.21E-06	2.86E-06	5.35E-07	4.90E-06	3.93E-06	2.25E-08	7.50E-06	5.20E-06	4.05E-07	1.49E-04	2.20E-04
Ionising radiation	kBq U-235 e	9.74E+02	3.29E+00	6.13E+00	1.14E+01	3.50E+00	4.88E+01	1.33E+02	2.39E-01	3.45E+01	1.24E+01	9.93E-01	3.83E+02	3.47E+02
Land use	Pt	4.06E+05	4.30E+03	1.62E+03	2.47E+02	3.61E+01	1.11E+04	8.59E+03	1.20E+01	2.75E+03	8.47E+02	-8.75E+03	7.19E+04	3.10E+05
Ozone depletion	kg CFC11 eq	1.12E-03	1.98E-05	8.47E-06	8.69E-06	2.61E-07	2.50E-05	5.92E-05	2.67E-08	6.26E-04	9.79E-05	-5.03E-09	2.57E-04	1.77E-04
Photochemical ozone formation	kg NMVOC	1.88E+02	2.68E-01	3.56E-01	5.50E-01	3.45E-02	1.64E+01	2.34E+00	9.71E-03	1.98E+01	8.50E-01	3.01E-01	5.28E+01	4.06E+01
Resource use, fossils	MJ	3.75E+05	8.00E+02	3.48E+03	3.26E+03	1.66E+02	1.65E+04	8.03E+03	6.39E+01	4.00E+04	2.53E+03	-4.25E+01	1.93E+05	1.09E+05
Resource use, minerals and metals	kg Sb eq	2.98E-01	2.04E-04	4.61E-04	1.63E-03	4.84E-05	1.51E-03	1.03E-03	8.35E-06	1.47E-03	1.22E-03	4.64E-05	1.54E-01	1.36E-01
Water use	m3 depriv.	1.83E+04	7.00E+00	7.12E+01	4.33E+01	1.20E+03	9.05E+01	2.62E+02	1.02E+00	7.99E+01	1.05E+01	-8.15E+00	1.23E+03	1.53E+04

Table 12a: (Greece) Life cycle stage percentage impact contributions per impact category

EF Impact Category	Unit	Temporary Infrastructure	Infrastructure Maintenance	Electricity	Water	Fuel and Oil	Food&Beverage	Packaging	Equipment& Clothing	Promotional Material& gadget	waste	Mobility	Accommodation
Acidification	mol H+ eq	0.26%	0.29%	0.74%	0.04%	8.59%	2.58%	0.01%	8.53%	0.64%	0.07%	31.46%	46.81%
Climate change	kg CO2 eq	0.20%	0.25%	0.66%	0.03%	3.90%	1.04%	0.01%	8.66%	0.59%	0.56%	43.56%	40.76%
Climate change - Biogenic	kg CO2 eq	0.04%	0.02%	0.02%	0.00%	0.03%	1.19%	0.00%	0.03%	0.16%	7.49%	0.33%	90.69%
Climate change - Fossil	kg CO2 eq	0.21%	0.22%	0.72%	0.03%	4.21%	1.05%	0.01%	9.38%	0.62%	0.08%	46.54%	36.36%
Climate change - Land use and LU change	kg CO2 eq	0.03%	1.29%	0.02%	0.00%	0.68%	0.04%	0.00%	0.08%	0.05%	0.00%	1.62%	93.39%
Ecotoxicity, freshwater	CTUe	0.15%	0.72%	0.30%	0.02%	2.53%	0.69%	0.00%	6.13%	0.40%	0.31%	41.73%	47.05%
Particulate matter	disease inc.	0.25%	0.21%	0.24%	0.02%	1.29%	1.26%	0.00%	14.70%	0.72%	0.14%	28.27%	47.59%
Eutrophication, marine	kg N eq	0.12%	0.36%	0.28%	0.02%	5.58%	1.96%	0.00%	8.44%	0.35%	1.02%	13.73%	67.06%
Eutrophication, freshwater	kg P eq	0.19%	0.30%	1.63%	0.05%	0.95%	0.78%	0.01%	0.56%	0.60%	0.02%	15.02%	79.98%
Eutrophication, terrestrial	mol N eq	0.19%	0.27%	0.34%	0.02%	15.36%	3.47%	0.01%	13.53%	0.54%	0.15%	24.09%	42.08%
Human toxicity, cancer	CTUh	0.56%	0.27%	0.21%	0.11%	1.77%	0.54%	0.00%	10.84%	2.32%	0.03%	31.79%	51.57%
Human toxicity, non-cancer	CTUh	0.29%	0.31%	0.73%	0.14%	1.24%	1.00%	0.01%	1.85%	0.81%	0.10%	37.78%	55.74%
Ionising radiation	kBq U-235 eq	0.34%	0.63%	1.18%	0.36%	5.01%	13.62%	0.02%	2.51%	1.26%	0.10%	39.27%	35.65%
Land use	Pt	0.11%	0.40%	0.06%	0.01%	2.72%	2.11%	0.00%	0.68%	0.21%	-0.22%	17.69%	76.23%
Ozone depletion	kg CFC11 eq	1.67%	0.74%	0.77%	0.02%	2.22%	5.24%	0.03%	37.73%	8.68%	-4.46%	31.68%	15.70%
Photochemical ozone formation	kg NMVOC eq	0.20%	0.27%	0.41%	0.03%	12.29%	1.75%	0.01%	14.80%	0.64%	0.23%	39.09%	30.31%
Resource use, fossils	MJ	0.21%	0.40%	0.87%	0.04%	4.59%	2.14%	0.02%	10.66%	0.67%	-0.01%	51.50%	29.11%
Resource use, minerals and metals	kg Sb eq	0.10%	0.15%	0.55%	0.02%	0.51%	0.35%	0.00%	0.50%	0.41%	-0.02%	51.73%	45.71%
Water use	m3 depriv.	0.04%	0.39%	0.24%	6.58%	0.49%	1.54%	0.01%	0.44%	0.06%	-0.04%	6.69%	85.26%

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➢ Croatian Federation: Zagreb - National Championships in Sprint for cadets, juniors and seniors - 15/17 September 2023

Table 11b: (Croatia) Characterized results for Croatian Canoe and Kayak competition

EF Impact Category	Unit	Total	Temporary Infrastructure	Infrastructure Maintenance	Water	Natural Gas	Fuel	Food & Beverage	Packaging	Equipment& Clothing	Promotional Materials& Signage	Waste	Mobility	Accommodation
Acidification	mol H+ eq	8.83E+01	5.23E-02	3.81E-05	5.56E-05	1.99E-02	1.78E+00	1.12E+01	1.04E-01	2.33E+01	9.08E-01	-5.39E-02	2.95E+01	2.17E+01
Climate change	kg CO2 eq	1.81E+04	1.11E+01	8.11E-01	6.18E-01	2.38E+01	2.00E+02	9.25E+02	2.36E+01	5.95E+05	1.99E+02	-5.59E+00	7.42E+03	5.35E+03
Climate change - Biogenic	kg CO2 eq	6.19E+01	7.20E-05	1.67E-02	2.31E-03	4.81E-05	8.77E-02	1.36E+02	5.12E-02	5.13E-01	2.70E+00	7.37E+00	3.71E+00	5.68E+01
Climate change - Fossil	kg CO2 eq	1.71E+04	1.11E+01	7.66E-01	6.15E-01	2.38E+01	3.00E+02	9.44E+02	3.35E+01	5.95E+05	1.96E+02	-1.80E+01	7.41E+03	2.80E+03
Climate change - Land use and LU change	kg CO2 eq	8.16E+01	7.01E-05	3.09E-02	1.07E-03	3.69E-05	6.10E-01	1.35E+02	3.84E-02	3.44E-01	1.94E-01	-8.71E-03	3.09E+00	1.77E+01
Ecotoxicity, freshwater	CTUe	1.43E+05	7.34E+01	7.14E+00	2.82E+00	1.78E+01	1.00E+03	1.08E+04	6.28E+01	5.49E+04	1.07E+03	1.39E+01	3.68E+04	5.90E+04
Particulate matter	disease inc.	1.36E-03	1.13E-06	5.94E-08	5.49E-08	1.13E-07	4.24E-06	8.49E-05	1.01E-06	6.10E-04	1.54E-05	-4.14E-07	4.35E-04	2.15E-04
Eutrophication, marine	kg N eq	5.40E+01	1.76E-02	1.16E-05	6.56E-04	8.01E-05	8.11E-01	5.24E+00	2.01E-02	9.70E+00	1.95E-01	1.51E-02	9.26E+00	8.75E+00
Eutrophication, freshwater	kg P eq	4.80E+00	1.50E-05	3.64E-04	4.08E-04	8.76E-04	1.87E-02	1.76E-01	6.55E-03	7.80E-02	7.24E-02	-7.10E-04	8.67E-01	5.57E+00
Eutrophication, terrestrial	mol N eq	8.03E+01	1.89E-01	9.13E-09	6.90E-03	6.45E-03	8.91E+00	4.76E+01	3.08E-01	1.05E+03	3.10E+00	-8.48E-02	9.86E+01	6.09E+01
Human toxicity, cancer	CTUh	1.92E-05	1.70E-08	4.80E-10	2.72E-09	5.38E-09	9.67E-08	7.44E-07	5.96E-09	8.11E-06	6.29E-07	-6.61E-10	6.14E-06	3.91E-06
Human toxicity, non-cancer	CTUh	1.85E-04	1.24E-07	2.21E-08	5.93E-08	4.92E-08	7.34E-07	2.69E-05	1.61E-07	1.24E-03	2.89E-06	-8.12E-08	7.33E-05	6.61E-05
Ionising radiation	kBq U-235 eq	8.38E+02	4.58E-01	1.14E-01	2.34E-01	5.77E-01	7.51E+00	2.73E+02	2.21E+00	5.47E+01	1.50E+01	4.93E-01	1.99E+02	5.08E+01
Land use	Pt	1.62E+05	6.39E+01	1.17E+01	2.41E+00	8.28E+00	1.66E+03	4.46E+04	1.73E+01	4.44E+05	8.57E+02	-2.46E+02	4.11E+04	6.90E+04
Ozone depletion	kg CFC11 eq	3.16E-04	2.95E-07	3.31E-08	1.74E-08	1.04E-06	5.75E-06	6.87E-05	1.74E-07	1.38E-04	1.54E-04	-6.75E-05	1.82E-04	4.61E-05
Photochemical ozone formation	kg NMVOC eq	9.68E+01	7.43E-02	3.39E-03	3.30E-03	4.13E-02	3.47E+00	2.60E+00	8.89E-03	4.03E+01	8.23E-01	-4.01E-02	3.90E+01	1.05E+01
Resource use, fossils	MJ	2.26E+05	1.57E+02	1.11E+01	1.10E+01	3.39E+02	2.42E+03	1.14E+04	6.34E+01	7.88E+06	2.90E+03	-5.08E+02	9.91E+04	3.08E+04
Resource use, minerals and metals	kg Sb eq	1.17E-01	9.11E-05	2.46E-06	5.23E-06	2.35E-05	2.27E-04	2.38E-03	7.15E-05	9.43E-04	1.30E-03	-9.51E-05	6.61E-02	4.64E-02
Water use	m3 depriv.	6.12E+03	7.49E-01	4.74E-01	8.44E+01	5.40E-01	1.56E+01	1.79E+03	5.26E+00	1.04E+02	1.71E+01	-1.18E+01	5.56E+02	2.58E+03

*Table 12 b: **(Croatia)** Life cycle stage percentage impact contributions per impact category*

EF Impact Category	Unit	Temporary Infrastructure	Infrastructure Maintenance	Water	NaturalGas	Fuel	Food & Beverage	Packaging	Equipment& Clothing	Promotional Materials& Signage	Waste	Mobility	Accommodation
Acidification	mol H+ eq	0.06%	0.00%	0.00%	0.02%	2.01%	12.69%	0.12%	26.56%	1.03%	-0.06%	33.23%	24.54%
Climate change	kg CO2 eq	0.06%	0.00%	0.00%	0.13%	1.11%	5.06%	0.13%	32.91%	1.10%	-0.03%	41.01%	18.51%
Climate change - Biogenic	kg CO2 eq	0.00%	0.00%	0.00%	0.00%	0.01%	38.19%	0.04%	0.36%	0.44%	1.19%	0.60%	59.48%
Climate change - Fossil	kg CO2 eq	0.06%	0.00%	0.00%	0.14%	1.12%	5.12%	0.14%	34.20%	1.14%	-0.08%	43.21%	16.04%
Climate change - Land use and LU change	kg CO2 eq	0.00%	0.01%	0.00%	0.00%	0.16%	42.64%	0.01%	0.11%	0.06%	0.00%	0.96%	56.07%
Ecotoxicity, freshwater	CTUe	0.05%	0.00%	0.00%	0.01%	0.74%	7.51%	0.04%	24.05%	0.75%	0.01%	30.55%	37.24%
Particulate matter	disease inc.	0.06%	0.00%	0.00%	0.01%	0.51%	6.20%	0.07%	44.76%	0.96%	-0.03%	31.93%	15.67%
Eutrophication, marine	kg N eq	0.05%	0.00%	0.00%	0.02%	1.26%	15.41%	0.06%	28.93%	0.57%	0.04%	27.21%	26.73%
Eutrophication, freshwater	kg P eq	0.03%	0.01%	0.01%	0.03%	0.39%	3.66%	0.14%	1.64%	1.51%	-0.01%	18.08%	74.53%
Eutrophication, terrestrial	mol N eq	0.08%	0.00%	0.00%	0.02%	2.91%	15.89%	0.07%	34.61%	0.85%	-0.05%	31.52%	13.49%
Human toxicity, cancer	CTUh	0.09%	0.00%	0.01%	0.03%	0.49%	5.78%	0.05%	41.28%	5.20%	0.00%	31.33%	15.68%
Human toxicity, non-cancer	CTUh	0.07%	0.01%	0.03%	0.03%	0.40%	14.58%	0.09%	6.70%	1.57%	-0.05%	40.77%	35.81%
Ionising radiation	kBq U-235 e	0.05%	0.01%	0.05%	0.05%	0.67%	32.61%	0.26%	4.15%	1.56%	0.06%	23.79%	36.55%
Land use	Pt	0.04%	0.01%	0.00%	0.01%	1.03%	27.58%	0.11%	3.76%	0.53%	-0.15%	25.41%	42.70%
Ozone depletion	kg CFC11 eq	0.05%	0.01%	0.00%	0.10%	0.73%	13.31%	0.03%	24.84%	29.91%	-13.11%	35.19%	8.94%
Photochemical ozone formation	kg NMVOC	0.08%	0.00%	0.00%	0.04%	2.55%	3.72%	0.09%	41.59%	0.85%	0.04%	40.27%	10.83%
Resource use, fossils	MJ	0.07%	0.00%	0.00%	0.15%	1.09%	5.04%	0.28%	34.85%	1.28%	-0.23%	43.81%	15.64%
Resource use, minerals and metals	kg Sb eq	0.08%	0.00%	0.00%	0.02%	0.19%	2.03%	0.06%	0.80%	1.11%	-0.08%	56.28%	39.50%
Water use	m3 depriv.	0.01%	0.01%	1.38%	0.01%	0.22%	45.54%	0.09%	1.70%	0.28%	0.19%	9.08%	41.98%

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➢ Slovenian Federation: Recreational Amateur Event - 30 August 2023

Table 11c: (Slovenia) Characterized results for Slovenian Canoe and Kayak competition

EF Impact Category	Unit	Total	Infrastructure Maintenance	Electricity	Water	Natural Gas	Fuel	Food & Beverage	Packaging	Equipment& Clothing	Ticket & Accreditation	Promotional Material& Signage	Waste	Mobility
Acidification	mol H+ eq	1.73E+01	5.86E-02	7.85E-01	1.68E-02	8.08E-04	2.77E+00	5.57E+00	1.36E+00	5.05E-01	4.48E-01	5.11E+00	-9.51E-02	2.31E+00
Climate change	kg CO2 eq	2.62E+03	2.07E+01	1.20E+02	5.05E+00	3.75E-01	3.12E+02	4.46E+02	4.10E+02	1.30E+02	8.64E+01	4.22E+02	-1.44E+01	8.04E+02
Climate change - Biogenic	kg CO2 eq	1.49E+01	4.81E-02	6.62E-02	1.15E-02	1.99E-04	1.36E-01	2.55E+00	1.06E+00	1.18E-02	5.58E-01	4.36E+00	3.68E+00	4.10E-01
Climate change - Fossil	kg CO2 eq	2.48E+03	1.97E+01	1.20E+02	5.07E+00	3.74E-01	3.11E+02	5.38E+02	5.99E+02	1.30E+02	8.73E+01	4.08E+02	-2.01E+01	6.83E+02
Climate change - Land use and LU change	kg CO2 eq	3.62E+01	4.98E+00	1.17E-02	5.38E-05	1.31E-04	6.38E-01	1.01E+01	1.00E+01	7.87E-03	5.73E-01	5.80E+00	-2.55E-02	3.34E-01
Ecotoxicity, freshwater	CTUe	2.02E+04	5.03E+02	3.13E+03	1.41E+01	7.33E-01	1.84E+03	2.46E+03	5.14E+03	7.34E+02	4.75E+02	5.32E+03	-3.86E+01	3.31E+03
Particulate matter	disease inc.	1.67E-04	1.14E-06	5.95E-06	1.74E-07	4.88E-09	8.39E-06	4.77E-05	2.12E-05	1.53E-05	7.03E-06	3.02E-05	-1.01E-06	3.83E-05
Eutrophication, marine	kg N eq	8.93E+00	6.74E-02	1.15E-01	3.28E-03	2.48E-04	1.28E+00	5.58E+00	6.28E-01	2.12E-01	1.03E-01	2.63E+00	-3.33E-03	3.93E-01
Eutrophication, freshwater	kg P eq	6.36E-01	4.52E-03	4.42E-02	2.04E-05	3.61E-05	2.93E-02	1.46E-01	9.20E-02	1.79E-03	3.35E-02	1.81E-01	-2.76E-03	1.04E-01
Eutrophication, terrestrial	mol N eq	6.09E+01	2.88E-01	1.20E+00	3.14E-02	2.66E-03	1.37E+01	2.30E+01	4.43E+00	2.29E+00	1.04E+00	9.31E+00	-2.25E-01	5.80E+00
Human toxicity, cancer	CTUh	2.15E-06	3.40E-08	3.16E-08	1.36E-08	2.22E-10	1.50E-07	3.02E-07	3.71E-07	1.77E-07	6.48E-08	4.08E-07	-1.13E-08	6.12E-07
Human toxicity, non-cancer	CTUh	3.71E-05	2.76E-07	1.52E-06	1.78E-07	2.03E-09	1.14E-06	1.46E-05	3.97E-06	2.76E-07	1.16E-06	5.91E-06	-2.78E-07	8.33E-06
Ionising radiation	kBq U-235 eq	1.95E+02	9.23E-01	1.69E+01	1.17E+00	1.55E-02	1.14E+01	8.74E+01	2.03E+01	7.80E-01	9.85E+00	2.56E+01	5.47E-03	2.07E+01
Land use	Pt	6.92E+04	5.33E+02	3.24E+02	1.20E+01	3.42E-01	2.58E+03	6.30E+04	2.46E+03	1.00E+02	3.00E+03	6.56E+03	-2.85E+03	3.41E+03
Ozone depletion	kg CFC11 eq	6.85E-04	1.63E-07	1.25E-06	8.70E-08	4.27E-08	5.84E-06	4.89E-05	1.15E-05	2.80E-06	2.04E-05	6.51E-04	-7.48E-05	1.74E-05
Photochemical ozone formation	kg NMVOC eq	1.37E+01	9.54E-02	5.43E-01	1.15E-02	1.70E-03	3.84E+00	2.20E+00	1.72E+00	8.79E-01	3.56E-01	1.58E+00	-8.76E-02	2.76E+00
Resource use, fossils	MJ	3.69E+04	3.11E+02	1.53E+03	5.52E+01	1.49E+01	3.84E+03	6.98E+03	6.16E+03	1.72E+03	1.61E+03	6.16E+03	-6.36E+02	9.13E+03
Resource use, minerals and metals	kg Sb eq	1.58E-02	1.35E-04	6.30E-04	1.61E-05	9.71E-07	3.53E-04	2.00E-03	2.32E-03	2.55E-05	6.14E-04	2.08E-03	-1.30E-04	7.81E-03
Water use	m3 depriv.	5.49E+03	1.35E+01	1.20E+02	4.12E+02	2.23E-02	2.11E+01	2.58E+03	4.12E+01	2.30E+00	4.46E+01	2.18E+03	-1.44E+01	6.19E+01

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Table 12c: (Slovenia) Life cycle stage percentage impact contributions per impact category

EF Impact Category	Unit	Infrastructure Maintenance	Electricity	Water	NaturalGas	fuel	Food & Beverage	Packaging	Equipment& Clothing	Ticket & Accreditation	Promotional Materials& Signage	Waste	Mobility
Acidification	mol H+ eq	0.57%	4.36%	0.10%	0.00%	16.00%	34.33%	7.89%	2.94%	2.93%	18.00%	-0.53%	13.34%
Climate change	kg CO2 eq	0.79%	0.57%	0.12%	0.04%	11.88%	16.99%	15.63%	4.96%	3.37%	16.10%	-0.55%	30.09%
Climate change - Biogenic	kg CO2 eq	0.32%	0.45%	0.08%	0.00%	0.92%	15.78%	7.14%	0.08%	3.75%	30.65%	38.07%	2.76%
Climate change - Fossil	kg CO2 eq	0.63%	4.84%	0.12%	0.04%	12.55%	13.66%	16.10%	5.25%	3.53%	16.48%	-0.81%	27.60%
Climate change - Land use and LU	kg CO2 eq	13.74%	0.04%	0.01%	0.00%	1.76%	27.85%	27.59%	0.02%	1.59%	26.49%	-0.06%	0.98%
Ecotoxicity, freshwater	CTUe	2.49%	1.55%	0.07%	0.00%	8.14%	12.21%	16.04%	3.73%	2.35%	27.32%	-0.19%	26.28%
Particulate matter	disease inc.	0.68%	2.39%	0.10%	0.00%	3.94%	28.51%	13.01%	7.97%	4.20%	18.06%	-0.60%	21.72%
Eutrophication, marine	kg N eq	0.75%	1.25%	0.04%	0.00%	14.12%	37.68%	7.03%	2.37%	1.13%	29.41%	-0.04%	8.15%
Eutrophication, freshwater	kg P eq	0.71%	6.95%	0.32%	0.01%	4.57%	23.03%	14.46%	0.28%	5.27%	28.51%	-0.43%	16.32%
Eutrophication, terrestrial	mol N eq	0.47%	1.98%	0.05%	0.00%	22.50%	37.81%	7.28%	3.77%	1.70%	15.29%	-0.37%	9.52%
Human toxicity, cancer	CTUh	1.58%	1.46%	0.63%	0.01%	6.98%	14.02%	17.23%	8.24%	3.01%	18.96%	-0.52%	28.40%
Human toxicity, non-cancer	CTUh	0.74%	4.11%	0.48%	0.01%	3.08%	39.31%	10.72%	0.74%	3.12%	15.96%	-0.75%	22.48%
Ionizing radiation	kBq U-235 eq	0.47%	8.67%	0.60%	0.01%	5.83%	44.84%	10.38%	0.40%	5.05%	13.13%	0.00%	10.60%
Land use	Pt	0.77%	0.47%	0.02%	0.00%	3.73%	76.69%	3.55%	0.14%	4.33%	9.48%	-4.12%	4.95%
Ozone depletion	kg CFC11 eq	0.02%	0.19%	0.01%	0.01%	0.85%	7.10%	1.67%	0.41%	2.97%	95.10%	-10.92%	2.54%
Photochemical ozone formation	kg NMVOC e	0.70%	2.51%	0.08%	0.01%	28.04%	16.06%	12.55%	6.42%	2.60%	11.53%	-0.64%	20.13%
Resource use, fossils	MJ	0.84%	4.16%	0.15%	0.04%	10.41%	18.92%	16.70%	4.67%	4.37%	16.71%	-1.72%	24.75%
Resource use, minerals and metals	kg Sb eq	0.85%	3.98%	0.10%	0.01%	2.23%	12.59%	14.62%	0.16%	3.87%	13.11%	-0.82%	49.30%
Water use	m3 depriv.	0.43%	2.19%	7.68%	0.00%	0.38%	47.23%	0.75%	0.04%	0.81%	39.62%	-0.26%	1.13%

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Interpretation of the results

The characterized results for the four Canoe and Kayak competitions reported in ***Tables 5,5a,5b,5c*** can be further analyzed in order to detect the key life cycle phases and processes which contribute most to the overall environmental footprint.

The next ***Figure 2 (Italy), 2a (Greece), 2b (Croatia), 2c (Slovenia)*** report the % contribution of each life cycle phase to the overall environmental footprint (weighted results).

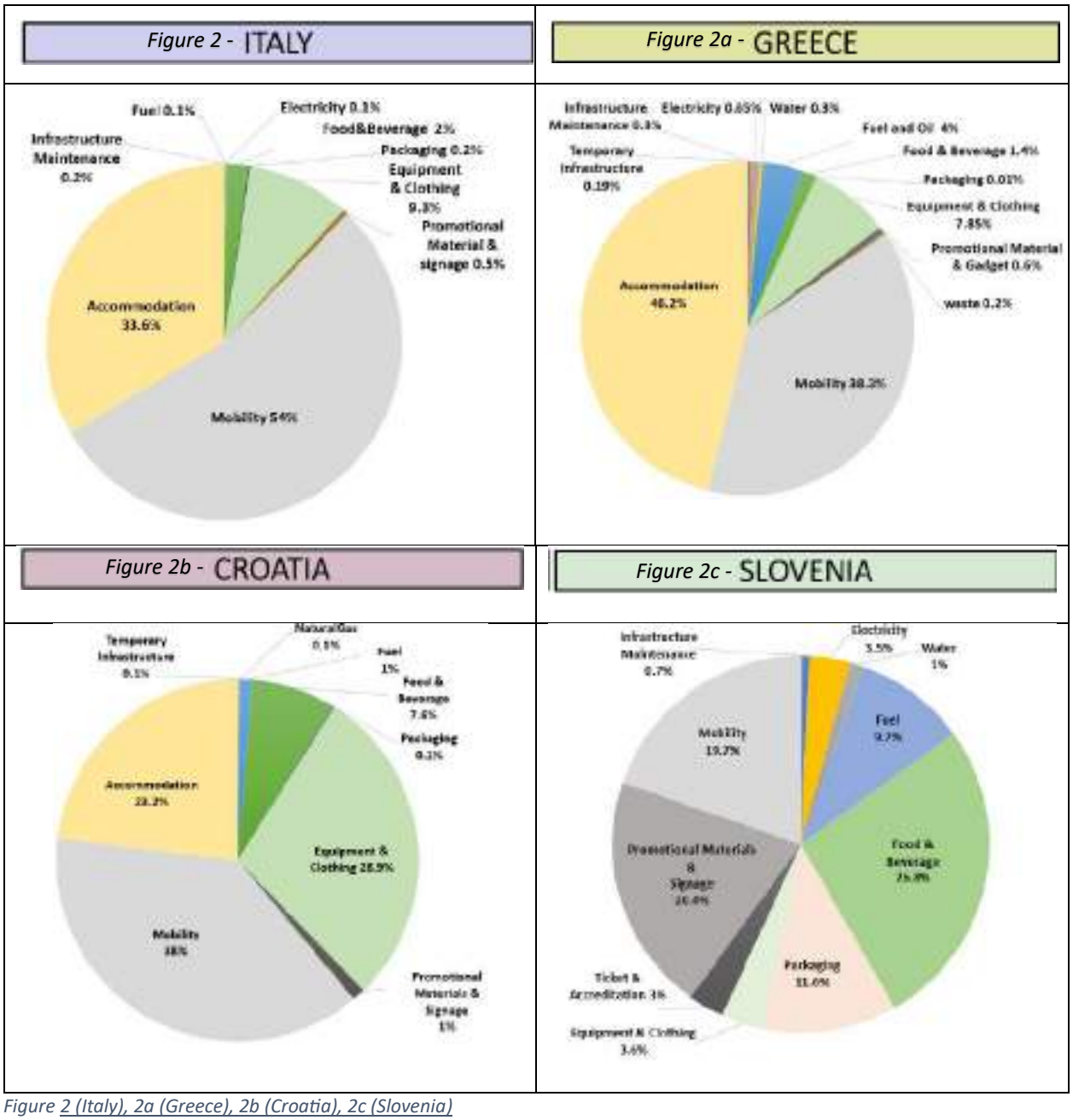


Figure 2 (Italy), 2a (Greece), 2b (Croatia), 2c (Slovenia)

Considering all life cycle stages, **Mobility, Accommodation and Equipment&Clothing** represent the most impactful stages, except for Slovenia where the most impactful phases are **Food and Beverage,**

Promotional Materials and Mobility (for this event there was no overnight stay to consider and the mobility of supporters was cut off due to lack of data).

The following ***Figures 3(Italy), 3a(Greece), 3b(Croatia), 3c(Slovenia)*** show in detail, weighted results (%), the impact contributions of one of the most significant phases for each Federations: **Mobility** for Italy, Greece and Croatia and **Food and Beverage** for Slovenia:

Figure 3 - ITALY

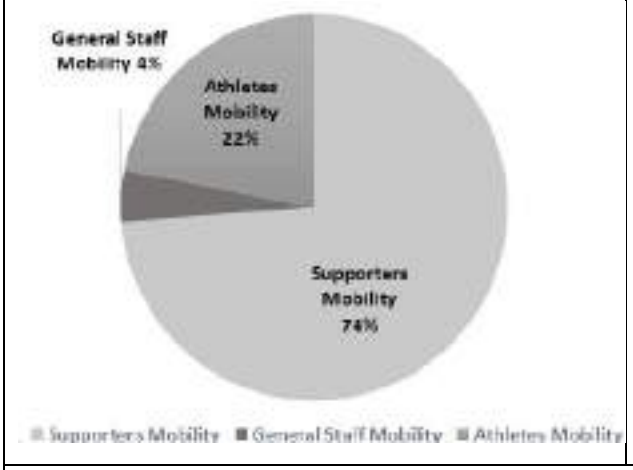


Figure 3a - GREECE

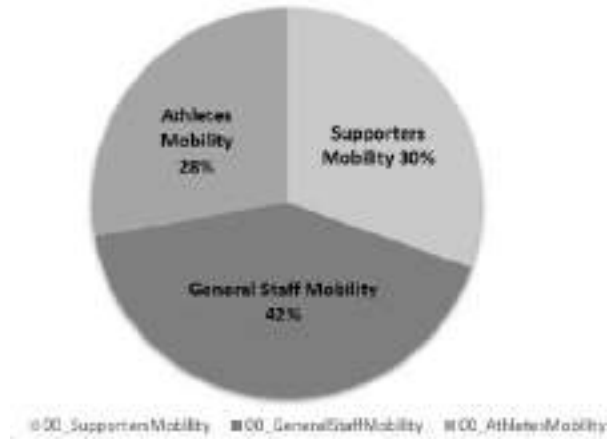


Figure 3 (Italy), 3a (Greece): Weighted results for total mobility: % contribution divided between Athletes, General Staff and Supporters' Mobility

Figure 3 (Italy), 3a (Greece)

CROATIA	Figure 3c - SLOVENIA
Figure 3b -	

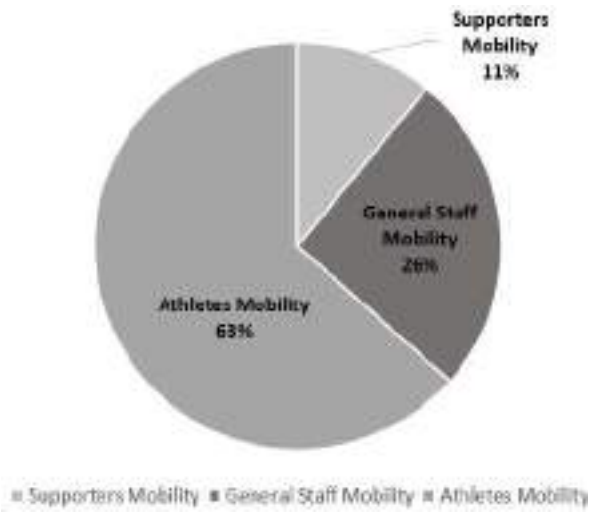
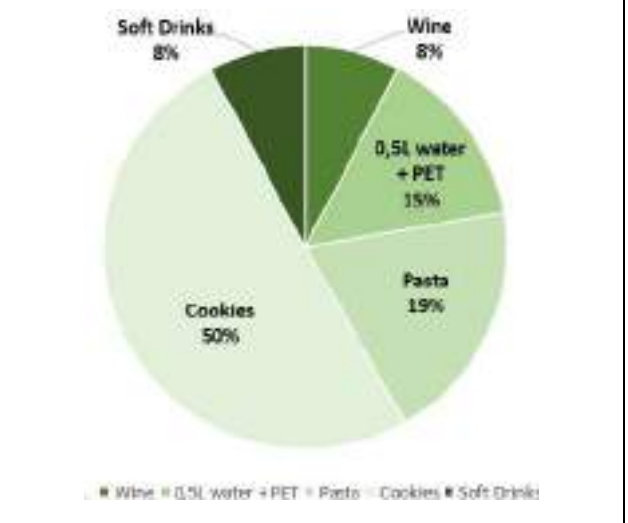

	

***Figure 3b (Croatia)**: Weighted results for total mobility: % contribution divided between Athletes, General Staff and Supporters Mobility;*	
Figure 3c (Slovenia): Weighted results for total Food and Beverage: % contribution divided between different kind of F&B*	

Figure 3b (Croatia) 3c (Slovenia)

*Although a reliable and internationally recognised database, Agibalyse, has been selected for the analysis of the F&B, the results depend on the quality of the specific cookies and pasta dataset, which in this study has been considered Fair

Focus on relevant impact category

The following ***Tables 14 (Italy), 14a (Greece), 14b (Croatia), 14c (Slovenia)*** show for each competition analyzed the relevant impact categories (highlighted in yellow) whose identification, according to the PEF methodology, shall be based on the normalized and weighted results and are those impact categories that together contribute to at least 80% of the single overall score.

Normalization is the process of relating the characterized results to a common reference situation, which might be expressed by one person's share of all emission and resource use in a given geographic area (such as the European Union) during one year.

Normalization, therefore, helps in identifying the impact's magnitude and it allows to sum up the results of the different impact categories, once they are all referred to the same reference unit.

Weighting is the process of attaching different importance (weight) to impact categories, while summing all their single scores, according to specific criteria, such as robustness in the impact assessment methods, or relevance and interest in public opinion. The result of weighting is the calculation of a single environmental score which is associated to the total environmental footprint of the study.

Relevant Category	Pt	%
Table 7 - ITALY		
Climate change	18.20	31.51
Resource use, fossils	9.84	17.03
Resource use, minerals and metals	5.39	9.33
Particulate matter	5.07	8.79
Photochemical ozone formation	3.56	6.17
Acidification	3.07	5.32
Eutrophication, freshwater	2.59	4.49
Water use	1.94	3.36
Eutrophication, terrestrial	1.93	3.34
Eutrophication, marine	1.74	3.02
Ecotoxicity, freshwater	1.70	2.94
Human toxicity, non-cancer	1.14	1.97
Human toxicity, cancer	0.69	1.19
Land use	0.62	1.07
Ionising radiation	0.26	0.45
Ozone depletion	0.02	0.03

Relevant Category	Pt	%
Table 7a - GREECE		
Climate change	0.96	30.03
Resource use, fossils	0.48	15.08
Resource use, minerals and metals	0.35	11.10
Particulate matter	0.31	9.62
Eutrophication, freshwater	0.23	7.15
Acidification	0.16	4.92
Photochemical ozone formation	0.15	4.84
Water use	0.14	4.27
Ecotoxicity, freshwater	0.09	2.97
Eutrophication, marine	0.09	2.68
Eutrophication, terrestrial	0.08	2.52
Human toxicity, non-cancer	0.06	1.77
Human toxicity, cancer	0.05	1.42
Land use	0.04	1.24
Ionising radiation	0.01	0.36
Ozone depletion	0.001	0.04

Relevant Category	Pt	%
Table 7b - CROATIA		
Climate change	0.50	29.33
Resource use, fossils	0.29	16.84
Particulate matter	0.20	11.92
Resource use, minerals and metals	0.14	8.10
Photochemical ozone formation	0.11	6.59
Acidification	0.10	5.73
Eutrophication, freshwater	0.08	4.86
Eutrophication, terrestrial	0.06	3.70
Eutrophication, marine	0.05	3.00
Ecotoxicity, freshwater	0.05	2.82
Water use	0.05	2.64
Human toxicity, non-cancer	0.03	1.53
Human toxicity, cancer	0.02	1.41
Land use	0.02	0.91
Ionising radiation	0.01	0.58
Ozone depletion	0.00	0.04

Relevant Category	mPt	%
Table 7c - SLOVENIA		
Climate change	73.11	24.18
Resource use, fossils	47.21	15.62
Water use	40.74	13.47
Particulate matter	25.16	8.32
Acidification	19.29	6.38
Resource use, minerals and metals	18.81	6.22
Photochemical ozone formation	16.01	5.30
Eutrophication, marine	13.52	4.47
Eutrophication, terrestrial	12.78	4.23
Eutrophication, freshwater	11.08	3.67
Ecotoxicity, freshwater	6.84	2.26
Land use	6.70	2.22
Human toxicity, non-cancer	5.30	1.75
Human toxicity, cancer	2.66	0.88
Ionising radiation	2.31	0.77
Ozone depletion	0.83	0.27

Table 13 (Italy), 14a (Greece), 14b (Croatia), 14c (Slovenia)

For **the first three relevant impact categories** of each event, the percentage impact contributions of the different stages have been calculated.

Figure 4 - ITALY

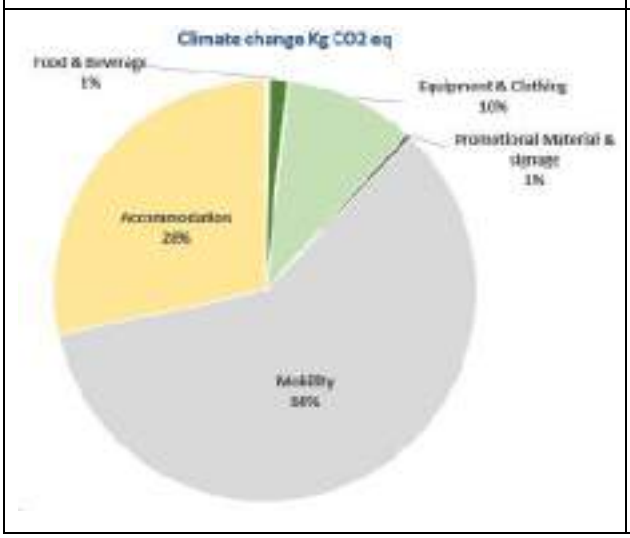


Figure 4a - GREECE

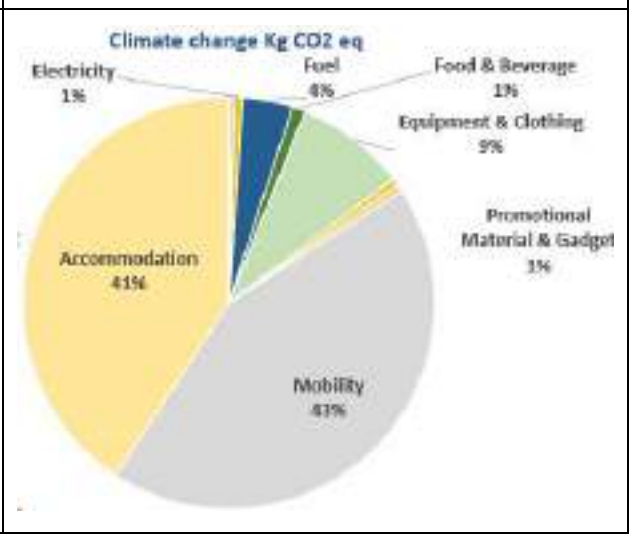


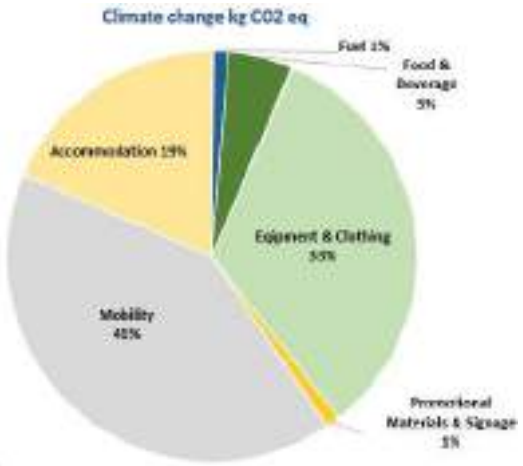
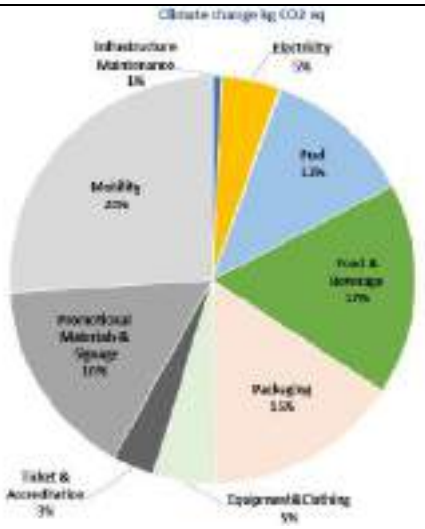
Figure 4b - CROATIA	Figure 4c - SLOVENIA
	

Figure 4 (Italy), 4a (Greece), 4b (Croatia), 4c (Slovenia): *Detailed focus on relevant category: Climate change.*

Figure 4 (Italy), 4a (Greece), 4b (Croatia), 4c (Slovenia)

Figure 5 - ITALY	Figure 5a - GREECE

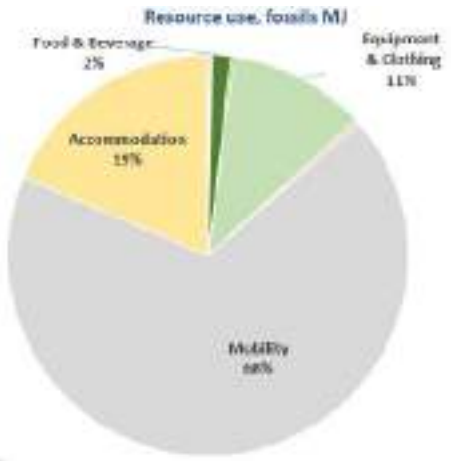
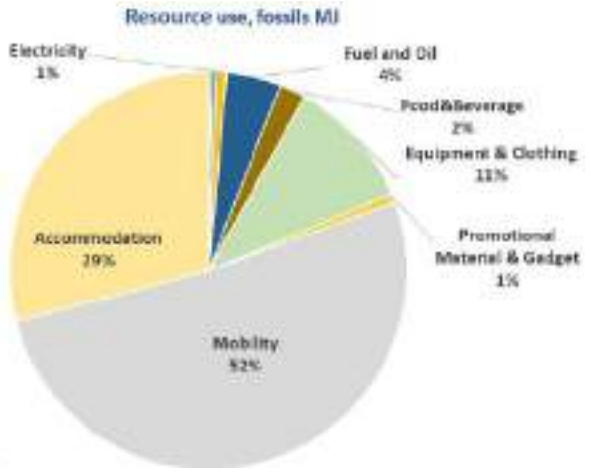
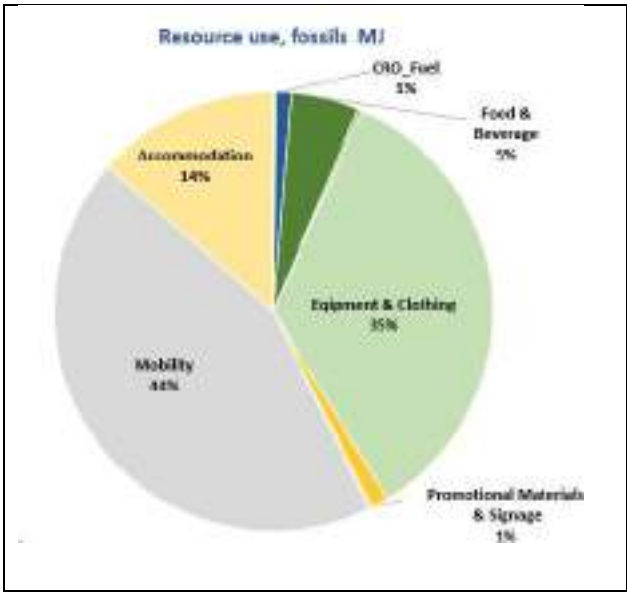

	

Figure 5b - CROATIA	Figure 5c - SLOVENIA



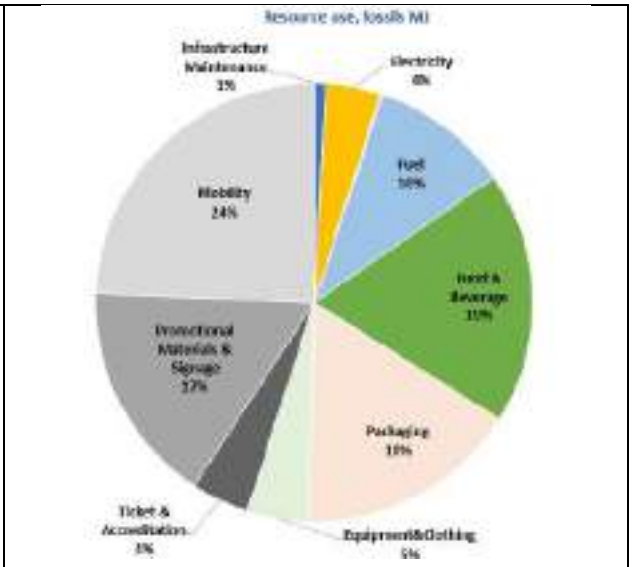


Figure 5 (Italy), 5a (Greece), 5b (Croatia), 5c (Slovenia): *Detailed focus on relevant category: Resource Use, fossils.*

Figure 5 (Italy), 5a (Greece), 5b (Croatia), 5c (Slovenia)

Figure 6 - ITALY

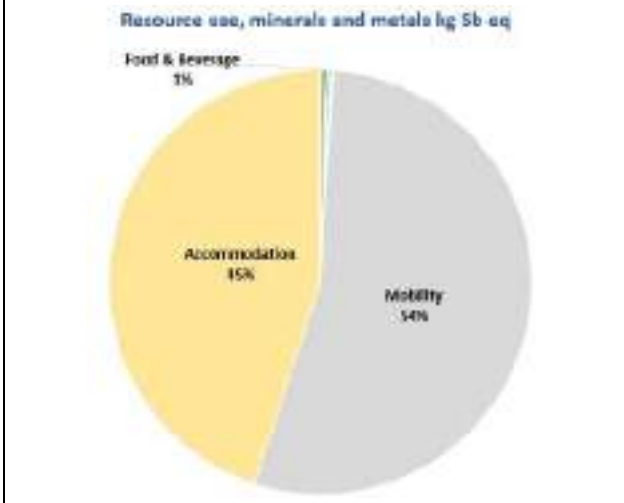


Figure 6a - GREECE

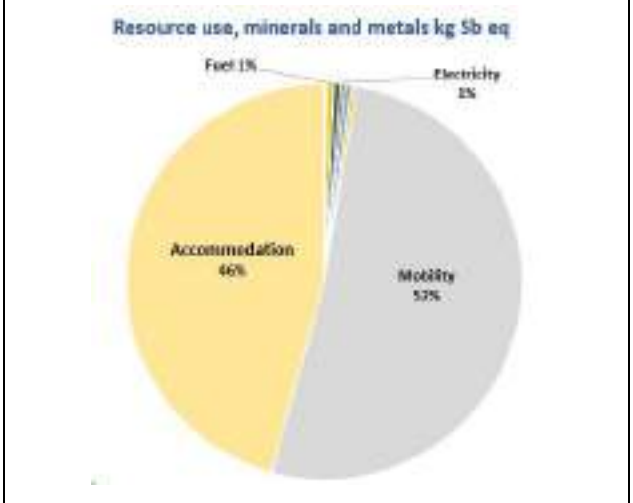
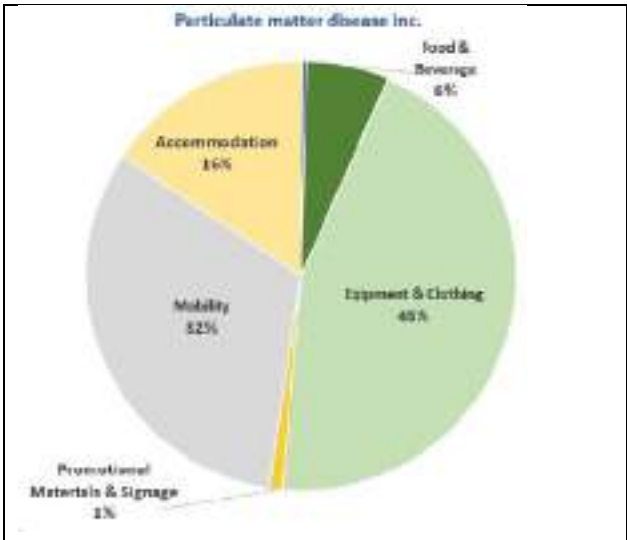


Figure 6b - CROATIA

Figure 6c - SLOVENIA



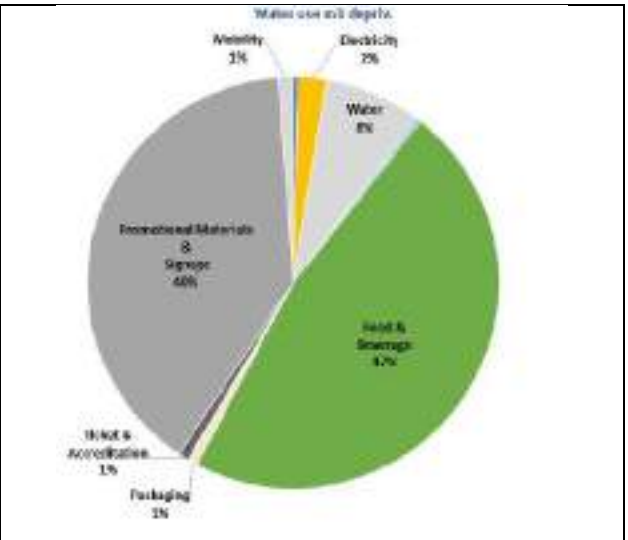


Figure 6 (Italy), 6a (Greece): *Detailed focus on relevant category: Resource Use, minerals and metals.*

Figure 6b (Croatia): *Detailed focus on relevant category: Particulate Matter.*

Figure 6c (Slovenia): *Detailed focus on relevant category: Water Use.*

Figure 6 (Italy), 6a (Greece), 6b (Croatia), 6c (Slovenia).

The relevant categories "Climate Change" and "Resource Use, fossils", highlight as first impact contributions **Mobility** related to the events of each Federation, followed by **Accommodation** for *Italy and Grece*, **Equipment&Clothing** for *Croatia* and **Food and Beverage** for *Slovenia*.

2.2.5. Conclusions of LCA Analysis

Taking into considerations the assumptions and the limitations of the study, as well as the fact that the use of fair quality data accounts for 10% (Italy, Greek and Croatia) and 14% (for Slovenia) of the total environmental footprint of the Canoe and Kayak National Federations, the current study main outcomes, with reference to the overall environmental footprint, are the following:

- **"Climate Change"**, **"Resource Use, fossils",** have to be considered the first two most **relevant impact categories** for all Canoe and Kayak National Federations.
- Considering all life cycle stages, **Accommodation, Mobility and Equipment&Clothing** represent the most impactful stages, except for Slovenia where the most impactful phases are **Food and Beverage, Mobility and Promotional Materials** (for this event there was no overnight stay to consider and the transport of supporters was cut off due to lack of data).

- With reference to **Carbon Footprint**, **Mobility** is confirmed as **most relevant contributor** to the impact category indicator (Climate Change- kg CO2 eq.) **for all National Federations**, followed by **Accommodation** (for **Italy and Greece**), **Equipment&Clothing** (for **Croatia**) and **Food and Beverage** (for **Slovenia**).

3. Governance need analysis: Environmental governance interview

The analysis of environmental governance makes it possible to define the level of development of an organisation's vision, mission and strategy, as well as its organisational structures and the self-regulatory tools (such as internal policies, procedures and management systems) put in place by each NF that enable it to operate and achieve its objectives.

Governance is a key lever to steer sports organisations, specifically Canoe and Kayak NFs, towards environmental sustainability by strategically defining environmental improvement goals and allocating human and financial resources to achieve them. Despite the centrality of environmental issues and the strong connection between canoe and kayak disciplines and environment, the Canoe and Kayak NFs under analysis lack the governance capabilities and self-regulatory tools to manage and monitor activities from an environmental perspective in a systematic way.

The following paragraphs detail the methodological approach underlying the environmental governance needs analysis and describe the results of the needs analysis for each participating NF.

3.1. Environmental governance interview

Within the framework of Task 2.2 'Organisational Analysis of National Federations (Governance)', the state-of-the-art of environmental governance of the project partners was analysed by conducting desk research and interviews. Based on this initial assessment, by mapping existing competencies, roles and responsibilities and highlighting the governance mechanisms underlying environmentally sound operations or processes, gaps (needs) and opportunities for improvement in environmental governance for each National Federation were identified.

3.1.1. Methodology

The SSSA developed a methodological approach, approved by the project committee, based on desk data collection and interviews with members of the NFs with different roles and functions. Specifically, the environmental governance needs analysis was carried out according to a 3-step process:

1) Collection and desk analysis of organisation charts, procedures and job descriptions shared, if available, by each NF to support an initial mapping of environmental procedures, organisation charts and the job descriptions present.
2) Interviews with key functions of each NF. Managers, coaches and external consultant were identified and interviewed to gain a deeper understanding of the current governance mechanisms, allocation of responsibilities and organisational dynamics that could be improved from an environmental perspective.
3) Analysis of data and information gathered to elaborate the environmental governance needs analysis.

3.1.2. Collection and desk analysis of organisation charts, procedures and job descriptions

The initial document analysis shared by each NF focused on organisational charts and role descriptions. To date, only the Italian Canoe and Kayak Federation has appointed a Sustainability Manager, while no National Federation partner in the project has yet defined an environmental policy. This initial document analysis made it possible to define which managers and figures to interview as part of the subsequent data collection phase (interviews).

3.1.3. Interviews with key managers of each NF

The interviews were conducted based on a protocol developed by the SSSA researchers aimed at gathering information on existing mechanisms, procedures and governance practices governing environmental issues in canoe and kayak organisations in order to identify potential areas for improvement and governance practices to be implemented in these areas. The interview protocol consists of 7 thematic sections:

1. Mission, strategy & policy;
2. Roles, responsibilities & training;

3. Procurement & selection of facilities;
4. Operational management (sites, venues, sport centres, mobility, logistics)
5. Organization of games/events
6. External communication
7. Sale & sponsorship / Marketing

The protocol was utilized to guide semi-structured interviews with selected organizational members.

Each NF identified a minimum of 4 central roles/functions to be interviewed for a total of 18 roles/functions interviewed. The same person, if responsible for more than one department, was interviewed on several key topics. In some cases, external consultants and coaches were interviewed as support figures for the NF in specific management areas. Each interview was conducted by two SSSA researchers and was recorded for note taking. The following interviews were conducted in each participating National Federation:

Table 13: Interviews

NF	INTERVIEEW	ROLE	DATE
CROATIAN NF	Vedran Bozic	Coach and Secretary of the Canoe Kayak Club Olimpik	06/02/2024
	Ivana Šundov	Administrative Manager	13/02/2024
	Stjepan Perestegi	Head coach of wild water canoe	20/02/2024
	Stjepan Perestegi	Head coach of wild water canoe	20/02/2024

NF	INTERVIEEW	ROLE	DATE
GREECE NF	Georgia Griva	Director	06/02/2024
	Georgia Griva	Director	06/02/2024
	Petros Satolias	Personnel	08/02/2024
	Petros Satolias	Personnel	08/02/2024
	Aristi Acheilara	Supervisor	09/02/2024

NF	INTERVIEEW	ROLE	DATE
ITALIAN NF	Ilaria Spagnuolo	Communication Manager	08/02/2024

	Ilaria Spagnuolo	Communication Manager	08/02/2024
	Matteo Ciola	Executive Manager for Caldonazzo Canoa Club and member of Italian National Federation	12/02/2024
	Anna Salvatori	Federal Secretary	09/02/2024

NF	INTERVIEEW	ROLE	DATE
SLOVENIAN NF	Andrej Humar	Operative manager	31/01/2024
	Andrej Jelenc	Director	07/02/2024
	Urša Kragelj	External Consultant	07/02/2024
	Gašper Pavli	External Consultant	13/02/2024
	Dusan Konda	Director of Sales and Sponsorships	07/02/2024

A summary report of the results was prepared for each interview and can be found in Annex B.

3.1.4. Results: Environmental governance "needs" among DECK partners

This section presents the results of the study conducted among the participating NFs, namely Croatian, Greek, Italian and Slovenian. The objective is to identify key areas for improvement in the environmental governance of these NFs. Firstly, it should be noted that these are small organisations with a small number of employees. Furthermore, although these organisations vary in terms of structure, resources, strategies and previous experience in environmental and sustainability management, recurring needs for environmental governance were identified from the interviews conducted among all participating organisations. Although environmental concerns are perceived as central by all interviewees, the NFs interviewed generally lack a structured approach to environmental management and a consistent formalisation of practices and procedures. This lack of formalised procedures hinders NFs in structuring, evaluating and monitoring their current performance in relation to salient environmental aspects. The main improvement opportunities that emerged from the needs analysis carried out are presented below:

1. Define of new self-regulation and management tools.

2. Define environmental management responsibilities among the various organisational positions.
3. Arrange appropriate environmental training and awareness for employees, staff and volunteers, both internal and external.
4. Implement collaborations with sponsors and business partners in the federations' sustainability initiatives.
5. Strengthen sustainability-oriented stakeholder engagement and external communication.

The following paragraphs elaborate on the above-mentioned environmental governance opportunities, explaining in more detail how action in these areas for canoe and kayak NFs can represent an environmental improvement.

Define of new self-regulation and management tools

All NFs need to take action by modifying existing governance mechanisms through the definition of new self-regulation and management tools that lead to influencing decision-making, planning, verification and monitoring processes.

The analysis showed that all NFs must incorporate or reinforce environmental considerations in the sports organisation's mission, vision and values, so that its actions are oriented towards compliance with environmental principles.

To this end, it is recommended both the definition of an environmental policy for the organisation detailing how it will address the environmental challenges it faces, including emissions reduction, better waste management, water conservation and biodiversity preservation, taking a long-term perspective. The definition of a specific environmental strategy/action plan with objectives, actions and the provision of an appropriate monitoring system is also recommended. The main suggestions include the adoption of specific procedures to improve management and reduce impacts in various areas such as waste management or green procurement.

Define environmental management responsibilities among the various organisational positions

Among the participating NFs, environmental tasks and responsibilities are not clearly assigned within the organisational chart. Only the Italian Canoe and Kayak Federation has appointed and included in the federal organisational chart a Sustainability Manager, although a precise formalisation of his tasks is lacking. As a result of this gap, the management of the environmental aspects of operations is often delegated to the proactivity of employees or to their awareness and sensitivity of environmental issues. This framework impacts on the organisation's ability to systematically intervene in processes and develop appropriate procedures that respond to increasingly pressing environmental issues.

In this sense, it is suggested that participating organisations map the competencies of the organisation's roles and departments, appointing and assigning specific environmental tasks and responsibilities to a sustainability figure or committee with the aim of integrating environmental roles and functions within the NFs.

Arrange appropriate environmental training and awareness for employees, staff and volunteers, both internal and external.

Despite the fact that the interviews underlined a growing interest and awareness of environmental issues, the lack of adequate training for employees and technical staff (coaches, volunteers, etc.) on environmental management issues in the context of sport, and specifically in the context of canoe and kayak, was noted. In fact, the majority of interviewees report a need to improve their skills and competences in sustainability and environmental management, in order to be prepared to deal with environmental issues.

It is therefore suggested that NFs fill this gap by defining an appropriate training plan for the development of employees' knowledge and skills in sustainability, environmental management and the circular economy. Intervening by defining training modules that equip employees and staff with the necessary skills and the implementation of formal awareness-raising campaigns are essential steps to foster the spread of an environmental culture and principles, encouraging environmentally friendly behaviour among employees, staff and volunteers, both in the office and during canoe and kayak events.

Implement collaborations with sponsors and business partners in the federations' sustainability initiatives

Despite the fundamental role of sponsorship and partnerships for the success and growth of sports organisations, few experiences of collaboration with environmentally active organisations to develop joint projects or initiatives that address environmental sustainability issues emerge from the interviews. As sports organisations increasingly pay attention to their environmental and sustainability performance, they can strengthen it by implementing partnerships with their sponsors and other organisations. At the same time, given the media attention that environmental issues are receiving, they must take action to protect their reputation by investing in sponsorships that can become a valuable ally by investing in projects and initiatives that reduce the environmental impact of the organisation or canoe and kayak event.

The rare experiences of collaborations and projects with sponsors lead to the suggestion to assess the position of their sponsors towards environmental sustainability issues and try to implement projects aimed at improving the environmental footprint of the organisation and event throughout its life cycle.

Strengthen sustainability-oriented stakeholder engagement and external communication

The world of canoe and kayak is characterised by the variety of stakeholders with whom interactions take place or can take place.

Canoe and kayak NFs can take on the role of a key player in the ecological transition by being able to involve different categories of public and private stakeholders, to foster the dissemination and contamination of knowledge and by sharing best practices between clubs, public bodies, local community and the sporting community.

Although the interviews reveal that NFs are involved in stakeholder engagement initiatives on various issues, experiences related to environmental sustainability appear to be new activities. Furthermore, many interviewees want to increase the level of stakeholder iengagement in relation to environmental sustainability issues, with a particular focus to local communities, public bodies and NGOs to broaden the scope of their own activities, leaving a positive legacy and creating shared value.

In this sense, communication plays a central role, defining tools and content according to the category of stakeholders. In particular, the definition of a Communication Plan is suggested to efficiently reach each category of stakeholders. Good external communication is central in this phase of involvement with considerable positive effects on the organisation's reputation. The interviews reveal the difficulty of narrating and sharing the different experiences and initiatives carried out. To this end, the drafting of a Sustainability Report is suggested in order to favour the measurement and facilitate the communication of the efforts made with respect to sustainability issues.

Annex A- Environmental on-site visits Reports

Annex B – Environmental Governance interviews Reports

ANNEX A

Environmental on-site visits Reports

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1. CROATIAN CANOE FEDERATION (HKS)

A. Environmental audit on National Cup for young's (Discipline Canoe Sprint) Rab 27th May 2023

1.1. Participants

- Auditors: Ivana Sundov (Croatian Canoe Federation)
- National Federation Representative: Branko Lovric (Croatian Canoe Federation)

1.2. Context – Island Rab and St. Euphemia bay

This report describes the environmental management practices implemented at the National Canoe Sprint Cup for young's event held on 27th of May 2023 at the Island Rab, Palit in the St. Euphemia bay, Croatia.

The 500-metre races of the National Canoe Sprint Cup were organised by the Organising committee consisting of Croatian Canoe Federation and the Kayak Club Rab "83". The event was attended by 9 national clubs, 150 athletes, 5 referees and 27 coaches, team leaders and others. The event took place at the St. Euphemia bay, on the Island of Rab. The venue is 1 km from the city centre. From the main land it is possible to reach the Island by the ferry; from the ferry port is 15 minutes' drive by car to the Kayak Club Rab "83", and the Venue is right behind the Club. Around the Club are places where you can leave cars, mostly private parking's. As the tourist season starts in this period, the clubs practice leaving their trailers and boats at the club the day before the race, and they come to the races on foot because the accommodation facilities are near the Club and the Venue.

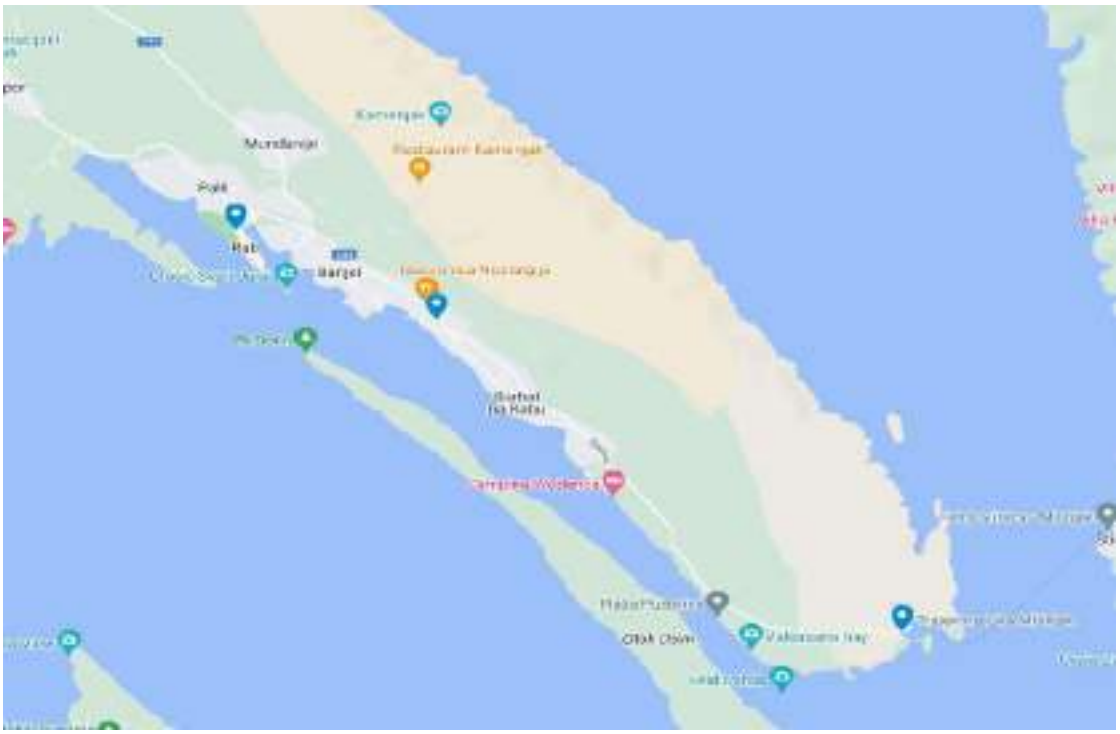

Figure 1: Location of the Venue and vicinity of City Center and Ferry port

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1.3. Environmental aspects

Accomodation for staff and athletes

The staff and athletes stayed near the venue itself. As the island of Rab is a touristic destination, there are many private accommodations nearby (apartments, guest's houses…). They reached the venue by foot, as they left all needed equipment in the Kayak Club Rab "83" day earlier.

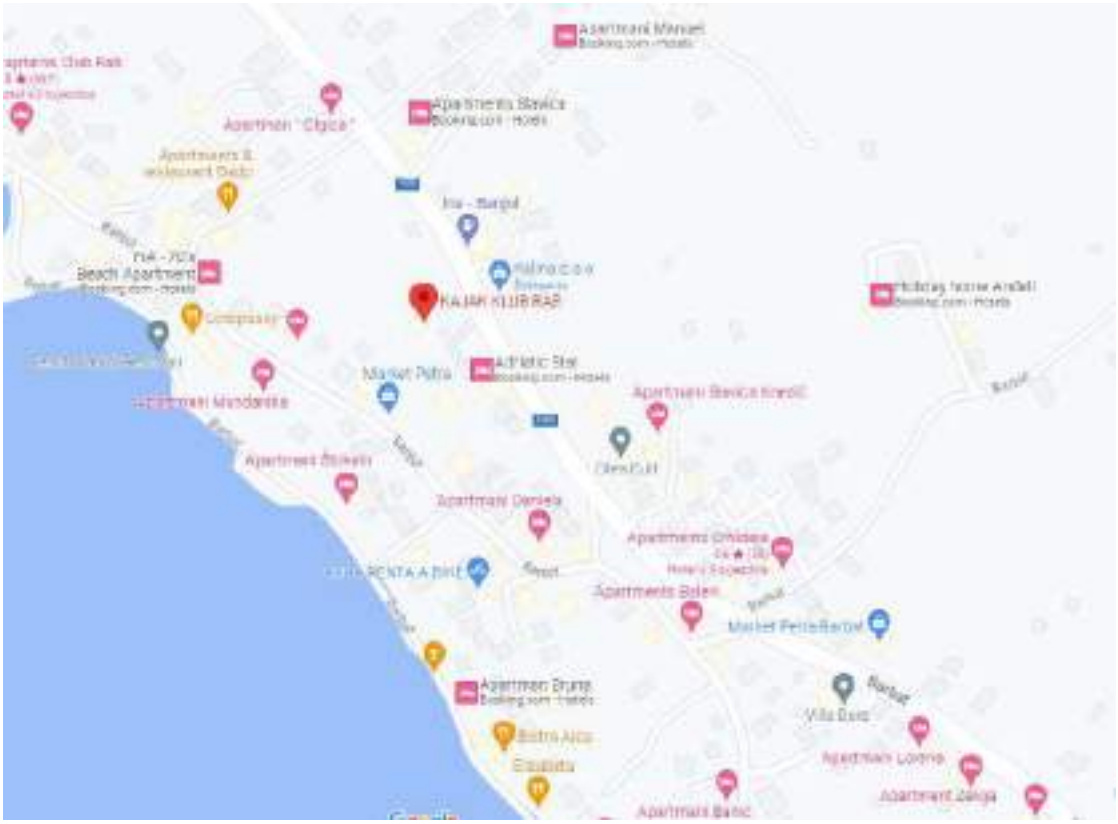

Figure 2: List of private accommodation near Kayak Club Rab "83"

The accommodation facilities were not audited. However, the following best practices are worth mentioning:

- no means of transport are used, as they are all within a maximum of a 20-minute walk from the competition area;
- they all provide bicycles for guests.

No environmental criteria are required by the Organising Committee and the only green criteria applied directly by the clubs for the selection of accommodation is the proximity to the Venue. In selecting accommodation, clubs are required to apply economic criteria. The Organising Committee assisted to all clubs regarding accommodation, as they know everyone on the Island and it was easily for them to point the most acceptable accommodation.

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Mobility

Regarding the mobility of the staff and athletes of the 9 clubs registered for the event, it should be noted that they travelled mainly by car or van to which they attached their trailers. All clubs used the ferry to reach the Island of Rab from the mainland. A total of 10 vehicles were used by the 150 athletes to reach the event. The 5 referees, 3 of them are selected on a regional basis and didn't need to travel, as they live on the Island of Rab. The Venue is connected with a promenade that stretches 15 km, use of motor bike and cars are prohibited, so even visitors reached the Venue by foot or bike. At the club there are bicycle racks and there are charging facilities for electric cars.

Figure 3: Bicycle rack near the Club

Figure 4: Electric car with provided electricity in the Club

Use of materials

The equipment used by athletes in the domestic sprint canoe competition consists of:

- the kayak and canoe boats,
- the kayak and canoe paddles,
- vest (for our cadets),
- spray cov

Figure 5: Paddles and boats in storage of KK Rab "83"

Boats and paddles are mainly made of carbon fibre with some elements made of plastic. Average use of boats and paddles are 30 years, vests and spray covers much less, approximately 10 years. Within our Federation we have programs of self-construction, so every year in approximately 10 actions in different clubs we educate our coaches and athletes how they can repair their boats and paddles, this is the reason why our equipment last for much longer than expected.

Figure 6: The instructor demonstrates making boat molds and coaches and members of the Kayak club Belisce on education

The boats do not require any treatment before the race or after the race. If necessary, they can be cleaned with water and limescale remover after the race, especially during this race given that the competition is held in salty water - the sea.
Other materials used during the race is petrol for petrol-powered boats (we had two of them during the race) and for generator.

Figure 7: petrol-powered boat

Figure 8: generator

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Boats at the end of their life can be recycled or disposed of; boat management is the responsibility of the individual clubs. On the Island of Rab they use garbage sorter. Regarding the choice of chemicals for the changing rooms and toilets, no environmentally certified products are chosen.

Branding and merchandising materials

Regarding branding and merchandising materials, there were no branding materials dedicated exclusively to the event. No sponsor gadgets are distributed to the fans.

Infrastructures

Most of the infrastructure regarding this event were premanent and consisted of following objects:

- club's headquarters
- podium
- tribunes

Only temporary infrastructure was a sunshade for judges at the finish line and Timekeeper's that is owned by the organizer. Club's headquarters were just behind the Venue. The building has locker rooms, restrooms, office, and hangar for the boats and the rest of the equipment. There was team leaders meeting provided and courtyard of the building was used as storage for boat trailers of participating clubs. Headquarters have been assigned to the Club by the city, and the Club isn't the owner.

Figure 9: Club's headquarters

Figure 10: Toilets, shower and Meeting room

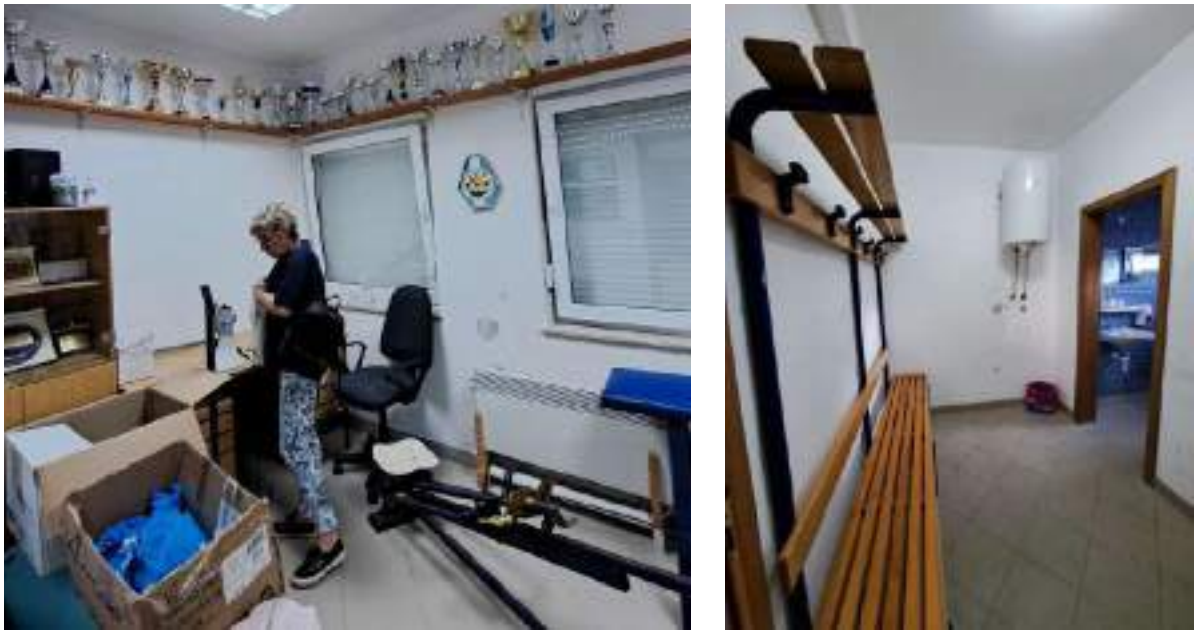

Figure 11: Club's office and Locker room

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Figure 12: Club's courtyard

Podium is owned by the organizer, made by wood and used for years in the club.

Figure 13: Podium

Figure 14: Medals

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We already mentioned that visitors are able to watch the races from the Promenade that stretches for 15km, which means it definitely covers our 500m races from the start to the finish line. We considered it as our tribunes as our athletes, team members and visitors were sitting on the Promenade and cheered for competitors. Nothing was added to it, only visitors brought their seating pads if needed.

Figure 15: Promenade as tribunes

Water management

With regard to water management, it should be mentioned that the Club's headquarters have system that supplies drinking water. The same water is used to clean the canoes. Water for teams was also provided in big water bottles (1.5 L) and thus small water bottles (0.5 L) were avoided in order to reduce the use of plastic in at least this minimal way.

For discharge of water bottles, it was used system of recycling, in a way that during the competition bottles were separated into special bags that were then took to stores that accept returnable packaging and received €0.07 for each returned bottle.

Figure 16: Drinking water fountains

Figure 17: Big battles of water

Energy management

Since the event took place during the day there is no significant energy consumption in the event areas, as the lighting is off for the whole duration of the event. There where one generator used on the finish line for Timekeeper's and for processing results.

Food and beverages activities

In the area of the Venue there are no bars and restaurants. It is a practice during this type of race that the organizer provides lunch for all participants. Organizer arranged local restaurant to prepare meals, amount of the meals are defined by earlier provided information from the Clubs with dietery requirements. The provider of food was choosen based on long-term cooperation, appreciation and support of local businesses. As sandwiches were distirbuted to the participants, there weren't need for cutleries.

Water bottles were provided in a plastic bottles at the begginig of the day, so participants for lunch used water fountains to refil water for lunch, and plastic cups were distributed to each team. Packaging of meals were in plastic containers, and each team leader received box and bags where they separated waste. Uneaten food was sorted in bioorganic bags for biodegradable waste, and leftover of sendwiches were distributed to the teams.

Figure 18: Lunch for participants

Figure 19: Box for plastic of one of the teams

Waste management

Waste separation bins are located near the club premises. Near Club's premises avaliable waste bins were for plastic, paper, glass and regular (mix) waste. There are no bins on the Venue itself, and for this reason, the waste bags were handed to the teams at the begining of the day, so at the end of the races were brought to the organizer, and the organizer will take them himself to the waste sorting center located on the other side of the Island. A very strange thing for an island to have a sorting center for waste at all, because some of the bigger and more popular islands in Croatia don't have it.

Figure 20: Bins for waste in organizer premises

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Figure 21: Separtes waste

Biodiversity and natural capital

The event takes place in the Adriatic Sea, St. Euphemia Bay. During the event, the sound impact is mainly attributable to the speaker and starting shots. In addition, the 2 rescue dinghies, with petrol engines, present on the race course were also responsible for the sound impact. There were no music stations.

The fauna and flora in the St. Euphemia bay haven't been affected by this race. No intervention was carried out on the sides of the competition field, as the only thing done to the area was placing buoys.

Figure 22: Buoys base

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 1: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of bicycle lanes • Presence of bike racks • Access to the Venue is forbidden to cars or other unauthorised motorised vehicles. • The Venue can be reached by foot or by bike by Promenade that connects the Venue with the rest of the parts of the town (15 km long)
Use of materials	• No branded materials for the specific event • Training programme for athletes and coaches to repair boats and paddles themselves
Branding and merchandising materials	• No gadgets from sponsors and clubs • No banner dedicated to the event • No fan products are delivered
Infrastructures	• Only use of facilities already in place
Water management	• Presence of drinking water stations
Energy management	N.A.
Food and beverages activities	• Number of meals to be provided in advance to the catering service
Waste management	• Presence of Sorting Waste System on the Island and sorting bins
Biodiversity and natural capital	• None or minimum impact on the area

Observations and recommendations

Table 2:Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels with environmental certifications)
Mobility	• N.A.
Use of materials	• Evaluate the use of ecolabel detergents
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	• Evaluate the installation of more water fountains
Energy management	• Evaluate installing photovoltaic panels on club facilities
Food and beverages activities	• Evaluate the reduction of plastic in general, to ask for reusable packaging, to give as a gift bottles that can be reused and brought with themselves
Waste management	• Evaluate to establish dialogue with the city to install waste bins on the Promenade
Biodiversity and natural capital	• N.A.

B. Environmental audit DECK project on European Canoe Marathon Championships (Discipline Canoe Marathon) Slavonski Brod 13-16 July 2023

1.1. Participants

National Federation Representative: Branko Lovric and Ivana Sundov (Croatian Canoe Federation)

1.2. Context – Slavonski Brod and River Sava

This report describes the environmental management practices implemented at the European Canoe Marathon Championships held from 13th to 16th of July at the River Sava, in Slavonski Brod, Croatia. Considering this competition is on European level, under the organisation is Croatian Canoe Federation, the Organising committee and the ECA Technical delegate for Marathon discipline. The event was attended by 23 European countries, 241 athletes, 13 ITO's (International Technical Officials), 15 NTO's (National Technical Officials), 6 result providers, 3 Jury members, 1 ECA Photograph, 20 Media workers, 127 volunteers, and 85 others (Team leaders, coaches, and team staff).

Entire competition covered races for juniors, U23, and seniors in different distance, from short races of 3,4km to long distance 11.8km, 15.4km, 22.6km, 26.2km, 29.8km. This is also only discipline that involves in some races running – implemented portages to the venue.

The event took place at the River Sava, in Slavonski Brod. The venue is 1 km from the city centre. It is possible to reach Slavonski Brod by car, bus or train. The closest big airport is Zagreb, which is 187km from Slavonski Brod.

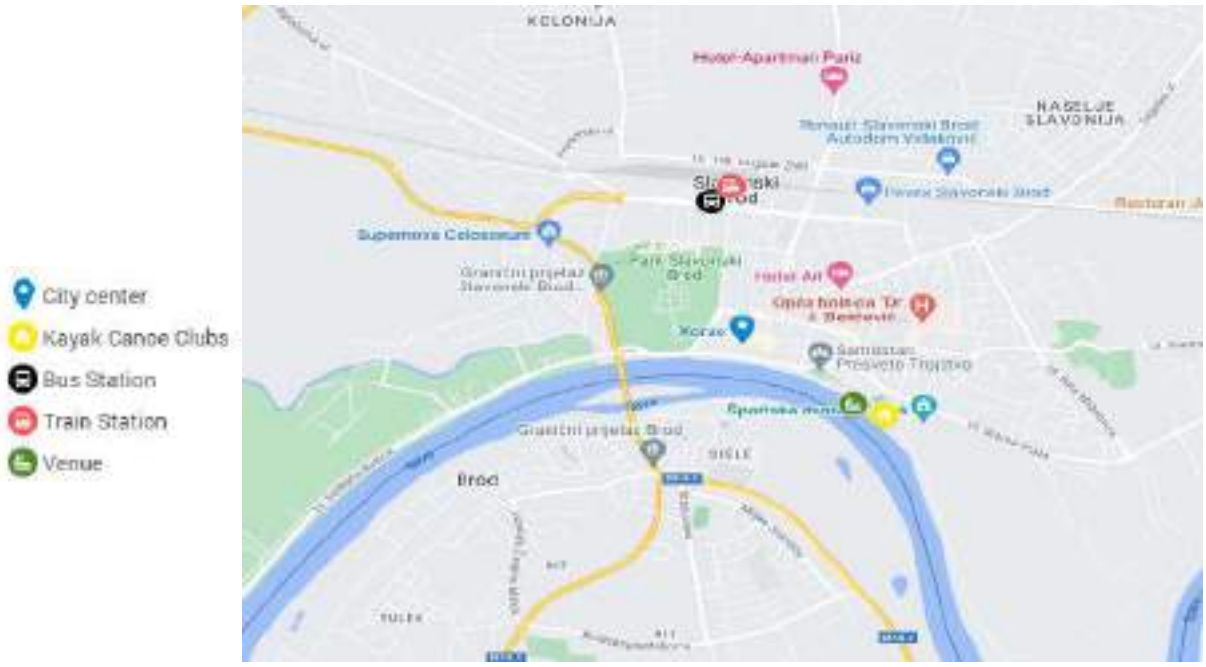

Figure 1: Location of the Venue and vicinity of City Center, Train and Bus station, Kayak Canoe Clubs

1.3. Environmental aspects

Accomodation for staff and athletes

Most of the staff and athletes stayed near the venue itself. Of the 23 participating countries, only 3 needed to travel from accommodation to the venue as the capacity of the entire town was full.

Accommodation	Distance from the venue
Hotel Art	1,1 km – 16min walk
Hotel Central + Smart Hostel	750m – 10min walk
Hotel Garden	2,2km – 30min walk
Hotel Mali Pariz	2,5km – 8min drive (organized from the organizer)
Hostel Levicki	950m – 13min walk
Hotel Zovko	6,7km – 12min drive – by team's van
Hotel Đakovo	51,7km – 40min drive (bus organized from the organizer)
Hotel Kralj Tomislav	58,2km – 44min drive – by team's van

Figure 2: Table of accommodation used by participating countries during the competition

The accommodation facilities were not audited. However, the following best practices are worth mentioning:

- no use of any means of transport as most of them are a maximum of 20 minutes away on foot
- they all provides bicycles for guests

No environmental criteria are required by the Organising Committee and the only green criteria applied directly by the teams for the selection of accommodation is the proximity to the Venue. In selecting accommodation, federations are required to apply economic criteria. The Organising Committee assisted to all federations regarding accommodation, as it was easier and cheaper for them – as then they don't pay accreditations for team. Only really small teams, with 2-3 athletes decided to book their accommodation on their own, but they were obligated to pay accreditations. They used mostly private accommodations in apartments, as other capacities were full.

Mobility

Regarding the mobility of the **teams** registered for the competition we had:

- 11 teams arrived by plane, and had organised transfers from Zagreb to Slavonski Brod
- 12 teams arrived by vans with attached trailers (total number of vehicles – 21)

Regarding the mobility of **staff** for the competition we had:

- ITO's, result providers, Jury members - arrived by plane, and had organised transfers from Zagreb to Slavonski Brod
- NTO's and volunteers – manly arrived by bike or by foot as they were locals
- Media team and staff from Croatian Canoe Federation – arrived by cars and vans (total number of vehicles – 4)

Regarding the mobility of **spectators** for the competition we had:

- spectators arrived from other countries mainly by car or with the teams
- spectators from Slavonski Brod and surroundings, some by foot, by car or public transport

Figure 3: Bicycle racks in front of the Club hangars

Use of materials

The equipment used by athletes in the marathon canoe competition consists of:

- the kayak and canoe boats with handle
- the kayak and canoe paddles with handle
- water bags

Figure 4: Athletes equipment

Like in my last report, boats and paddles are used for years, and they get repaired by athletes, coaches and professional staff. During this competition we had professional team from the Nelo Company (producer of kayak and canoe boats) providing their service of reparation boats and paddles.

Figure 5: Repairing boats

The boats do not require any treatment before the race or after the race. If necessary, they can be cleaned with water and limescale remover after the race.

Other materials used during the race are petrol for petrol-powered boats (2 for rescue team, 1 for ITO's and TV) and for generator which was a backup for Marshal raft station.

Figure 6: petrol-powered boat

Branding and merchandising materials

Regarding branding and merchandising materials, there were billboards at two positions in Slavonski Brod, few posters around the venue and pop up wall. No sponsor gadgets are distributed to the fans. As we had accreditation system, we used accreditation cards which had logo of our Championships and sponsors.

Figure 7: Billboard

Figure 8: Poster

Figure 9: Pop up wall

Figure 10: Accreditation card

Infrastructures

Permanent infrastructure of the event consisted of following objects:

- club's headquarters
- accreditation/info centre/catering/opening ceremony/toilets and showers – Sports hall Vijus
- marshal raft – station on a venue for measuring boats
- meeting/resting room for judges

Temporary infrastructure:

- small wooden houses for ITO's, speaker, results providers and volunteers
- gazebos for team members
- parasols
- portage and pontoons
- metal flag poles and metal stand for flags
- TV equipment – jumbo TV screen
- podium
- portable toilets
- boat racks

Entire area was adapted to our event, and there was a different segments of permanent infrastructure used and adopted to our use.

Figure 11: Scheme of our venue with all important parts

Club's headquarters were just next to the Venue. The building has locker rooms, restrooms, office, and hangar for the boats and the rest of the equipment. For this event we used only room we adopted for our OC office. In general this is the newest building of all Croatian kayak clubs, build by the city of Slavonski Brod and used by our two clubs Olimpik and Marsonia. On the upper floor is a Bar where everyone was able to go for refreshment.

Figure 12: Clubs headquarters

In Sport hall Vijus we used everything we could. Located just few minutes from the Venue it was easy to approach it at any moment. Inside we had Accreditation and Info centre, catering, toilets and showers for athletes. Additions from our side to the used rooms were tables and equipment.

Figure 13: Sport Hall Vijus

Figure 14: Accreditation and information centre

Figure 15: ITO's resting and meeting room

Figure 16: Gazeboo's for teams

Figure17:temporary infrastructure - small houses for TV, result providers, andITO's

Figure 18: Parasols for judges and team members

Portage is a part of temporary infrastructure where athletes are getting out of the water and, run with boats. Portage is main part in Marathon competition, and there are different types of portages, depends on permanent infrastructure. In Slavonski Brod we had concrete part near river, and we adopted it with carpet and pontoons. Pontoons were bought for this competition, and it will be used in further competitions. Except carpet, rest of the equipment used for portage was rented for this competition.

Figure 19: Area before adaption

Figure 20: Portage and Pontoons

Podium, metal stands for flags and boat racks were rented for this cometition.

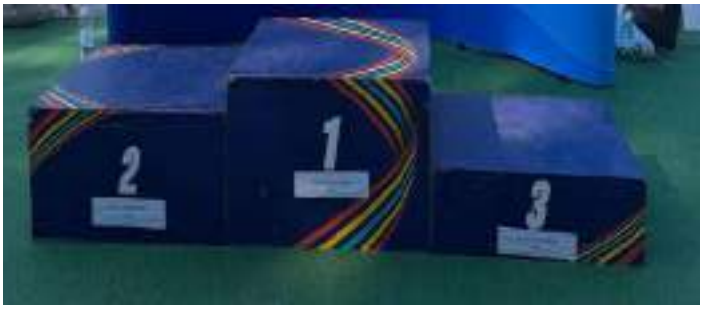

Figure 21: Podium

Figure 22: Metal stands for flags

Figure 23: Boat racks for teams

Medals for the European Championships have a distinctive design, and this one was no different. Medals were distributed by the members of the jury and the team leader of the winning athlete of that race. They were brought on a cushion, carried by female volunteers, along with a rose. The cushions are owned by the Croatian Canoe Federation - the organizer.

Figure 24: Medals

As there is a promenade next to the venue itself, the tribunes were not set up, but the fans and teams were on the promenade and cheered for their athletes.

Figure 25: Promenade as tribunes

Water management

With regard to water management, on each section (Accreditation room, Marshal Raft, ITO's room, Athlete area…) we had water coolers, and also in Athlete area water connected to the tap (water fountain). Water for volunteers who haven't been near water machines we provided in big water bottles (1.5 L) who were distributed every day before their shift.

For discharge of water bottles, it was used system of recycling, in a way that during the competition bottles were separated into special bags that were then took to stores that accept returnable packaging and received €0.07 for each returned bottle.

Figure 20: Drinking water fountains

Figure 21: Water cooler

Energy management

Since the event took place during the day there is no significant energy consumption in the event areas, as the lighting is off for the whole duration of the event. There was one generator used as a backup just in case of power lost, as all of our devices were connected to main electricity system of the City. Total consumption of electricity is unknown, but it was used for all the devices used by the judges, results providers, the scale on the Marshal raft, and television needs - a large screen and for live broadcast.

Figure 22: ITO's equipment

Food and beverages activities

In the area of the Venue there was a bar acessable to everybody where drinks were served. On the Venue catering sevice was organised by the OC for teams, judges and voloneers, as well for all included in organization. Most of the teams had lunches in their accommodation, as they were in walking distance from the Venue. Lunch/Catering on the Venue it was served in between races, e.g. after morning races, before afternoon races (temperatures were really high, so ther was no race programm during the midday).

It was located in Vijus, which was really close to the Venue, accessible to everybody by foot. Food was made by local provider, and delivered to the Venue. Menue was prearanged and food was coming in big pots and served by volonteers in reuseble bowls and cultery who were washed later.

Water cooler were provided with plastic cups in the building. Uneaten food was thrown away, and leftovers of food were distributed to the teams.

Figure 23: Bowls and cutlery used for lunch on Venue

Waste management

Unfortunately in Slavonski Brod there is no waste speraration center, and even we put waste separation bins around the Venue, all of it at the end of the day ended up in the same place. For waste management local company from Slavonski Brod is arranged.

Figure 24: Waste bins

Biodiversity and natural capital

The event took place on River Sava. During the event, the sound impact is mainly attributable to the keynote speaker, start sign through a megaphone, music during the programme (along with anthems for medal ceremony). In addition, the rescue dinghies and boats for TV team, with petrol engines, present on the race course were also responsible for the sound impact.

Regarding intervention on the Venue, we had a big impact on the area around portage, as we adopted whole area to be safe for athletes with pontoons. To make it accessible and safe for pontoons we needed to move big rocks from the coast of the River, but in general, cleaning that whole area of trees, garbage's and all different kind things River brought to this area earlier – which was on the other side a good thing. Except portage, we used buoys to mark the laps and turns during the race.

Figure 25: Adaption of Portage and Portage

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.
The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 3: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of bicycle lanes • Presence of bike racks • The Venue can be reached by foot from most of the accommodation of teams
Use of materials Errore. L'origine riferimento non è stata trovata.	• N.A.
Branding and merchandising materials	• No gadgets from sponsors and clubs • No fan products are delivered
Infrastructures	• Permanent infrastructure used to its maximum
Water management	• Presence of drinking water stations

Aspects	Description
Energy management	N.A.
Food and beverages activities	• Number of meals to be provided in advance to the catering service
Waste management	N.A
Biodiversity and natural capital	• Cleaning whole area of the Venue from garbage

Observations and recommendations

Table 4:Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels with environmental certifications)
Mobility	• N.A.
Use of materials Errore. L'origine riferimento non è stata trovata.	• Evaluate the use of ecolabel detergents
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	• Evaluate the installation of more water fountains
Energy management	• Evaluate installing photovoltaic panels on club facilities
Food and beverages activities	• Use reusable cups or glass bottles to reduce use of plastic
Waste management	• Evaluate to establish dialogue with the city to install waste bins on the Promenade • To motivate the City of Slavonski Brod to organise sorting centre for waste in the city
Biodiversity and natural capital	• N.A.

3. Environmental audit on National Championships for cadets juniors and seniors (Discipline in Canoe Sprint) Zagreb 15-17th September 2023

1.1. Participants

Auditors: Rachele Stranieri (SSSA)

National Federation Representative: Ivana Sundov (Croatian Canoe Federation), Branko Lovric (Croatian Canoe Federation)

1.2. Context – Lake Jarun, Zagreb

This report describes the environmental management practices implemented at the National Championships in Sprint for cadets, juniors and seniors event held from 15 to 17 of September 2023 at the Lake Jarun, in Zagreb, Croatia.

The races of the National Championships in Sprint were organised by the Organising committee consisting of Croatian Canoe Federation, Zagreb Canoe Federation and the Matija Ljubek Club, based in the park.

Sprint canoeing takes place on a flat water course and races are held in two types of boats, the canoe and the kayak. In the canoe, the canoeist competes in a stepping position using a one-bladed paddle, unlike the two-bladed paddle used in a sitting position in the kayak. Competitions were held both individually and in teams over the distances of: 200 m (day 1), 500 m (day 2), 1000m (day 3), and 5.000 m only for seniors and veterans (day 3).

The competition of the National Championships in Sprint involved 3 categories: cadets, juniors and seniors. The event was attended by 13 national clubs, 217 athletes, 2 timekeepers, 2 data collectors, 6 judges, 7 safety members on inflatable boats, 20 coaches, team leaders and others.

The event took place on Lake Jarun, located 6 km south-west of the centre of Zagreb. The artificial lake was carved out by the Sava River. The lake has one of the best rowing tracks in Europe and has been used for international competitions. Created for the 1987 Summer Universiade, the lake is home to the Jarun Sports and Recreation Centre, featuring a 2 km-long artificial lake surrounded by cycle paths, promenades, forests and parks. The Big Lake (Veliko Jezero) is the part of the lake designated for rowing and windsurfing. The Small Lake (Malo Jezero), on the other hand, is reserved for swimming, pedalo rides, bars and cafes. A complete tour of this area, including a couple of small islands connected to the mainland, is just over 12 km.

The building with the offices, control rooms and grandstands, located on Universijada Island, and the other building of the Jarun Sports and Recreation Centre, are owned by the municipality. The Zagreb Canoe Federation, a member of the Organising committee, has a sports fund, which was used to rent the buildings; the price includes water and electricity consumption. Three canoe and kayak clubs are based at Lake Jarun.

The Lake is 6 km from the city centre. You can reach Lake Jarun by car, by tram n° 5 or 17 to Jarun or by bus. It is possible to access the lake area by bus or car by paying an entrance fee, but during the competition period athletes and staff can enter free of charge with their cars and vans. Around the lake there are cycle paths.

Figure 1: Location of the Lake Jarun and vicinity of City Center

Figure 2: Lake Jarun and competition field

1.3. Environmental aspects

Accomodation for staff and athletes

The different accommodation solutions adopted by athletes and staff are as follows:

- 3 clubs are based in Zagreb, so staff and athletes spent the night in their usual homes.
- 5 clubs chose to camp in the area around the competition field, equipping themselves with tents and kitchens.
- 1 of the clubs stayed overnight in the gymnasium of the Jarun Sports and Recreation Centre.
- 1 club from outside Zagreb, travelled back and forth for all 3 days of the competition.
- 3 clubs stayed in 3 hotels near Lake Jarun (Hotel Europa, Hotel Zagreb, Hotel Stari Hrast).

Figure 3: Clubs' tents that camped at Lake Jarun

The hotels were selected based on economic criteria; Lake Jarun is not easily reached on foot from the hotels. Hotels were not audited and good environmental practices were not identified on their websites.

Regarding the areas where the tents were set up, they were surveyed and good environmental practices implemented included:

- proximity to the competition site, movement of athletes and staff on foot or by bicycle in the Lake Jarun area,
- differentiated waste collection implemented with the help of the Croatian Canoe Federation, which placed waste bins in strategic areas, including the tents.

No environmental criteria are required by the Organising Committee and the only green criteria applied directly by some clubs for the selection of accommodation is the proximity to the venue. In selecting accommodation, clubs are required to apply economic criteria. The Organising Committee assisted all clubs regarding accommodation.

Mobility

Regarding the mobility of the staff and athletes registered for the event, they travelled mainly by car or in vans to which they attached their trailers, except for the athletes and staff of the 3 Zagreb-based clubs who travelled mainly by bicycle and public transport. The other 10 clubs used 12 vans and 1 bus. In Lake Jarun one could enter by car, paying an entrance fee, but athletes and staff could enter free of charge with cars and vans, to which trailers for transporting canoes and kayaks were attached.
There are cycle paths within the lake and some race participants used bikes to get around and, coaches, to follow the race. There were bicycle racks at the Jarun Sports and Recreation Centre.

Figure 4: Bicycle rack near the Jarun Sports and Recreation Centre

Use of materials

The equipment used by athletes in the National Sprint Championships consists of:

- kayak and canoe boats,
- kayak and canoe paddles,
- safety waistcoats (for cadets and some juniors),
- club competition costume,
- sports equipment (tracksuit, shorts, T-shirt).

The boats and paddles are mainly made of carbon fibre with some plastic elements. The average use of boats and paddles is 30 years. The Croatian Canoe Federation organises courses in self-repair of canoes and kayaks, so every year in about 10 actions in different clubs they instruct coaches and athletes on how to repair their boats and paddles.

Figure 5: Canoes and kayaks on trolleys

The boats do not require any treatment before the race or after the race. If necessary, they can be cleaned with water and limescale remover after the race, especially if the competition is held in salty water - the sea.

Figure 6: Racing costume of the clubs

Other materials used during the race is diesel for diesel-powered boats (two of them during the race).

Figure 7: Diesel-powered boat

Branding and merchandising materials

As far as branding and merchandising materials were concerned, two banners with the sponsor's logo were present on the race course, one hanging behind the podium, other near Finish tower. No sponsor gadgets were distributed to the fans.

The banner is made of plastic and is reused by the Croatian Canoe Federation, until ruined by consumption.

Figure 8: Banner of the sponsor

Infrastructures

The infrastructure is divided into fixed and mobile.

Fixed infrastructures: the fixed infrastructures that are part of the Jarun Sports and Recreation Centre and located on Universijada Island are the grandstands, offices and control rooms. Before the entrance to the Universijada Island is another building of the Jarun Sports and Recreation Centre, which houses a canoe and kayak club, a canoe storage facility, a gymnasium and changing rooms with showers and toilets for athletes. In front of this building are the water access ramps. There are numerous bars and restaurants on Lake Jarun. On the Universijada Island there is a bar. Other fixed structures are the fixed poles and steel cables for the race course.

Mobile infrastructures: podium, tents and club gazebos.

Fixed infrastructures

The building on the Universijada Island houses the grandstands, offices and control room. The building was constructed as part of the 1987 Summer Universiade and is owned by the municipality and rented by the Organising Committee. The rooms most used during the competition are: the control room, located on the turret, where the judges operate with the support of computers and technical instruments, and the meeting room.

Figure 9: Universijada Island

Figure 10: Grandstands, control tower and control room (Building 1)

The other building of the Jarun Sports and Recreation Centre is located opposite the water entrance ramp. The building houses the headquarters of a canoe and kayak clubs (Kajak Kanu Klub Jarun and Matija Ljubek), storage for canoes and kayaks, a gymnasium, toilets and showers and other sports club headquarters. It is still owned by the municipality.

Figure 11: Jarun Sports and Recreational Centre (Building 2)

Figure 12: Water entry ramps

Figure 13: Kajak Kanu Klub headquarter and gym

Figure 14: Changing rooms and showers

Other fixed structures are related to the race course such as fixed poles, steel cables, buoys and race gates.

Figure 15: Fixed poles, steel cables and buoys

Mobile infrastructures

The podium, owned by the Croatia Canoe Federation, is made of wood and finished with a red carpet. It is moved as needed and reused during the various competitions held on Lake Jarun. The staff of the

Organising committee, specifically the Croatia Canoe Federation, takes care of moving it and depositing it at the end of the competition in a storage room at the Jarun Sports and Recreational Centre.

Figure 16: Podium

Other mobile infrastructure at the competition site are the tents and gazebos owned by the clubs that camped near the lake.

Water management

Regarding water resource management, the price paid for the rental of the facilities also includes water and energy consumption.

Consumption, however, is mainly attributable to the members of the clubs that camped near the competition site who used the showers at the sports centre.

In addition, there are drinking water dispensers at the control room and at the canoe and kayak clubhouse. At the control room is a refillable water dispenser. At the clubhouse, the water dispenser is connected to the water system of the building.
The same water is also used by some athletes to clean their canoes.


Figure 17: Water recharge services

Energy management

As the event took place during the day, there was no significant energy consumption in the event areas, as the lighting was switched off for the duration of the event. The clubs that camped near the competition field for the evening were connected to the power supply of the Jarun Sport and Recreational Centre, again it is difficult to identify consumption. There are no photovoltaic panels on the buildings of the Jarun Sports and Recreational Centre.

Food and beverages activities

There was no catering service. Each club organised itself by ordering or purchasing food in the vicinity of the competition. The camping clubs set up a kitchen on the field, bringing their own gas canisters, plastic dishes and food.

Figure 18: Camping area kitchen

For the judges, timekeepers, safety officers and some members of the Organising Committee, the food was ordered near Lake Jarun and delivered in plastic bags, aluminium containers and plastic cutlery.

Figure 19: Takeaway for the Organising Committee staff and technical staff

The bar on the Universijada Island, which was privately run and independent of the competition, used glass glasses and reusable ceramic cups . Beer was on tap and the beer supplier was from Zagreb. There were no sugar sachets but glass dispensers.


Figure 20: Bar glasses and cups

Waste management

At Lake Jarun, there is no differentiated waste collection uniformly spread over the entire area, with undifferentiated waste bins prevailing. Only in some areas (e.g. near the bar) are there larger bins for separate waste collection.

In the competition area, there were no bins for separate waste collection. For this reason, the Croatian Canoe Federation independently implemented a waste collection service in the competition area and where some clubs were camping. They provided bins for the separate collection of plastic, wet waste and unsorted waste, and at the end of the competition, some staff members collected the waste separately and took it to the larger separate bins.


Figure 21: Separate waste collection implemented by the Croatian Canoe Federation

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Figure 22: Larger bins for separate waste collection

A recycling system was used to handle the plastic water bottles, so that during the race the bottles were separated into special bags which were then taken to shops that accept returnable packaging, receiving 0.07 euro for each returned bottle.

Figure 23: Bags for collecting plastic bottles

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Biodiversity and natural capital

The event takes place on Lake Jarun, an artificial lake about 6 km from the city centre of Zagreb, created by damming the Sava River. It was built in the 1970s primarily for flood control and water supply. The water in Lake Jarun is of excellent quality and is regularly monitored.

During the event, the sound impact was mainly attributable to the announcement of the start and medals award announcement with a megaphone. In addition, the 2 life rafts, with diesel engines, on the race course were also responsible for the sound impact. There were no music stations.

The fauna and flora of the lake were not affected by this race even though the municipality carried out cleaning work on the lake bed. In fact, at the request of the Croatian canoe federation and the clubs based at the lake, the lake in the competition areas was subjected to interventions aimed at removing the water lilies that was getting stuck in the paddles.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 5: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	N.A.
Mobility	• Presence of bicycle lanes • Presence of bicycle racks • Lake Jarun can be reached by public transport. The bus has a stop inside the park near the competition area.
Use of materials	• Courses for self-repair of canoes and kayaks
Branding and merchandising materials	• No gadgets from sponsors and/or clubs • No fan products delivered
Infrastructures	• Only use of facilities already in place
Water management	• Presence of drinking water stations
Energy management	N.A.

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Aspects	Description
Food and beverages activities	• Some meals cooked and served on site (for clubs camping in the competition area)
Waste management	• Placement of separate collection bins in areas where a separate collection system was absent
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 6:Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Encourage the selection of accommodation based on environmental criteria (e.g. hotels with environmental certifications). • Suggest some accommodation selected based on environmental criteria
Mobility	• Evaluate providing information on how to reach the competition area by public transport
Use of materials	• Evaluate the use of ecolabel detergents
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	• Evaluate the possibility of establishing a dialogue with the city to promote the distribution of drinking water fountains in the Jarun Lake area
Energy management	• Evaluate the possibility of establishing a dialogue with the city to install photovoltaic panels on the buildings of the Jarun Sports and Recreation Centre
Food and beverages activities	• Evaluate offering a catering service that operates according to environmental criteria
Waste management	• Evaluate the possibility of establishing a dialogue with the city for the installation of waste bins throughout the Jarun Lake area
Biodiversity and natural capital	• Evaluate partnerships with universities and NGOs to raise awareness of the importance of biodiversity protection

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HELLENIC CANOE-KAYAK FEDERATION (HCKF)

A. Environmental audit on ICF SUP WORLD CUP 2023 (Discipline SUP) Agios Nikolaos 7, 8 & 9 JULY 2023

1.1. Participants

Auditors: Tiberio Daddi, Rachele Stranieri, (Scuola Superiore Sant'Anna)

National Federation Representative: Georgia Griva, Ioannis Skourtis (Hellenic Canoe Kayak, SUP, Surf Federation).

1.2. Context – Agios Nikolaos, Crete

This report describes the environmental management practices implemented at the first ICF Stand Up Paddling World Cup, held in Agios Nikolaos, on the Greek island of Crete, from 7 to 9 July.

The competition, which also included the Greek national championship (juniors and masters), was attended by 290 athletes representing 28 countries. The athletes took part in the competition independently of the individual federations. Ten referees were also present.

Stand-up paddling is a sport practised on rivers, lakes, canals, white water and the ocean. The discipline consists of standing on a board and paddling. The main SUP competitions are sprint, long-distance and technical races.

Specifically, the SUP sprint race is a straight-line race that tests the athletes' paddling speed. It is the fastest SUP and paddleboard discipline. The SUP distance race is the marathon of stand-up paddleboarding. The technical SUP race is a slalom competition in which competitors test their speed and riding skills.

The competitions were organized by the Organizing Committee formed by the Hellenic Canoe, Kayak, SUP, Surf Federation and the Agios Nikolaos On-Sup club, which managed the competitions in agreement with the Municipality of Agios Nikolaos.

The competition took place in Agios Nikolaos, which is located on the east coast of the island of Crete, Greece, and lies on the Gulf of Mirabello. It is located approximately 60 km east of Heraklion, the capital of Crete.

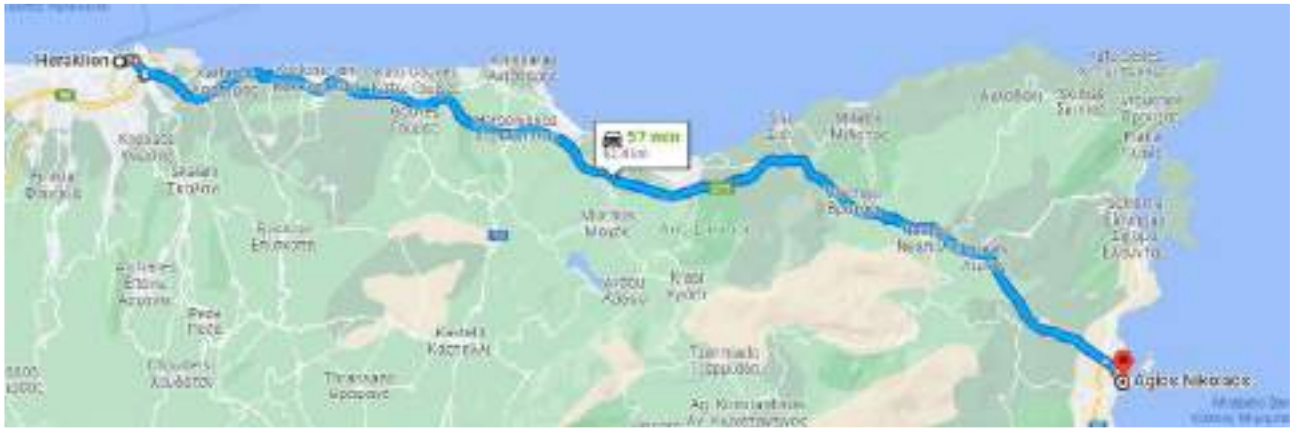

Figure 2: Agios Nikolaos geolocation

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Competitions were held on three locations more or less distant from the centre of Agios Nikolaos: EOT Beach (Kimzu Sea Lounge), Lake Voulismeni and Plaka Beach - Spinalonga.

EOT Beach is a beach in the centre of the town of Agios Nikolaos with sunbeds and a snack bar, Kimsu sea lodge. There are grass and many trees around. It is a four-minute drive from the town centre and it is possible to reach the venue also by walking. Technical and sprint races (100 m, 200m) have been held here.

Figure 3: Geolocation of the EOT beach

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Figure 4: Race course for technical and sprint races

Lake Voulismeni is a small circular lake connected to the sea located in the centre of the town of Agios Nikolaos. The lake is connected to the town's port by a channel and it was the site of the SUP sprint final competition (8 July) and the finish of the long-distance race (9 July). In addition, a diving exhibition took place on the evening of 8 July.

Figure 5: Geolocation of Lake Voulismeni

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Figure 6: Race course of the final sprint competitions

As for the third resort, Plaka is located 16 km north of Agios Nikolaos, opposite the entrance to the lagoon of Korfos (or Elounda Lagoon). Plaka overlooks the island of Kalydon, on which the famous fortress of Spinalonga is located.

The beach in Plaka was the starting point for the long-distance race and from here the athletes ran 13.5 km with the finishing line at Lake Voulismeni.

Figure 7: Plaka geolocation and competition field long-distance race

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Depending on the location, the races were also followed by tourists and locals; in fact, the races that took place on Lake Voulismeni, being right in the city center, saw the participation of a large audience already present on site. The other races saw the prevalent participation of parents and technical staff.

1.3. Environmental aspect

Accommodation for staff and athletes

Since the competition was attended by athletes individually, not belonging to any federation, it is difficult to find information on the accommodation chosen by each individual athlete.

The club On Sup of Agios Nikolaos recommended accommodation on the event website that provided discounts for athletes participating in the competition, however no environmental criteria were applied in the selection of hotels. Some athletes also contacted the club On Sup directly for advice on further recommended accommodation. Again, no requests were made that applied environmental criteria in the selection of accommodation.

Mobility

As the race was held on the island of Crete, the athletes took the plane or the ferry. The organising club On Sup, on the event website, provided information on two ferry companies that offered discounts for athletes participating in the race.

Also on the event website, the On Sup club provided information on how to reach the city of Agios Nikolaos from the airport by car, also providing information on rental companies, or by public transport.

On the island, the preferred means of transport for the athletes and staff turned out to be cars or small vans, also in view of the fact that the athletes also had to load and move their sup board between different locations. Each athlete had their own means of transport, shared mainly with coaches and parents, who were the main supporters following all the competitions.

Use of materials

The equipment used by athletes in sup races consists of the board, paddle and, in the case of long-distance races, a life jacket.

The SUP board consists of five main parts called the Deck, Bottom, Rail, Nose and Tail. The DECK is the upper part of the board, i.e. the part of the board where the supper stands and paddles to move through the water. The BOTTOM, on the other hand, is the lower part of the board, i.e. the part in direct contact with the water. In the bottom of the board, at the back, are the fins (FINS). The fins are essential for paddling, i.e. to help the supper give direction to the board, to maintain balance and to manoeuvre it in the right way. In this regard, the rear part is called the stern, or TAIL. The front part, on the other hand, is the bow, also called the NOSE. The RAIL or edge is nothing more than the part around the board. Different workings of the rail allow the board to act differently in the water. Connected to the board is the safety leash,which allows the athlete to be tied to the board. The leash is optional for technical and sprint races depending on the weather conditions and the course of these two events. In the long distance it is compulsory. The board can be rigid or inflatable. Professional athletes usually use rigid boards made of carbon fibre. The paddle is also usually made of carbon fibre. The board does not require any specific treatment before the competition. At the end of the race the safety valve (if present) is opened so that the board can be decompressed and not damaged. Cleaning the table at the end of the race does not require the use of chemical materials. The average lifes of a board

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depends a lot on how it is used and how it is managed, but in general it can be a few years. Boards that are no longer suitable for competition because they are damaged are usually sold for amateur use or are left to younger athletes for training.

Figure 8: Professional sup board and paddle

At the end of their life, the boards are disposed of; the management of the board is the responsibility of the individual athletes.

One must also consider the diesel fuel consumed during the competitions: on the first two days there was 1 boat with the rescue team and 1 judge on board, the other 9 judges were ashore. During the long distance competition there were 15 rescue boats with 6 judges on board.

Figure 9: Rescue boats

During the accreditation phase, each athlete was assigned a number and given 2 plastic sheets, 1 adhesive sheet to stick on the board and 1 non-adhesive sheet to stick with pins to the shirt used during the competition. T-shirts with the event logos were also distributed to each athlete. From the interview with two athletes of the junior category it emerged that the shirts distributed during the race would have been reused during training.

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Figure 10: numbers and shirt for the competition

During the event, the use of paper was reduced. In fact, results, invitations and lists of athletes were available online on the event website and not printed to save paper. Papers were printed for the judges.

Branding and merchandising materials.

In terms of branding materials, there were numerous plastic flags of the Hellenic Federation and the On Sup club at the three competition venues (EOT beach, Voulismeni lake, Plaka), these flags were also present throughout the city of Agios Nikolaos. The OnSup club banners were specific to the competition and will not be re-used, while those with the logo of the Hellenic federation will be used several times over the years for other competitions as well.

Both categories of flags were fixed on black plastic sticks, which were reused in the course of other competitions until they broke due to wear and tear.

Behind the stage there was also a poster dedicated to the competition made of plastic material.

On the podium and on the start and finish inflatables were stickers relating to the competition.

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Figure 11: Banners of the Hellenic Canoe, Kayak, Sup and Surfing Federation and the Agios Nikolaos On Sup club at the 3 competition venues

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Infrastructures

The infrastructures are divided into fixed and mobile. The fixed infrastructures were: the bar located at the EOT beach (Kimzu sea lodge) offering canopies for guests and toilets.

Figure 12: Toilets and canopy at EOT beach

The mobile infrastructure was a podium, umbrellas at the Kimzu sea lodge for the judges, an inflatable park for the start and finish at the EOT beach and Lake Voulismeni respectively, and a mega screen at Lake Voulismeni.

The wooden podium with the competition stickers was placed in the athletes' area behind the Kimzu sea lodge (EOT beach) and on the stage in front of Lake Voulismeni, used for other events in the city.

Figure 13: Podium in EOT beach

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Two inflatables were positioned at the entrance to the race course from the beach of EOT and at the entrance to the canal connecting the lake of Voulismeni to the port of Agios Nikolaos, the starting and finishing points of the races taking place at the two sites.

14 Figure: Inflatables in EOT beach

A park overlooks Lake Voulismeni and a screen has been placed on the rock face between the lake and the park. The screen has also been used for other events.

Figure 15: Screen at Lake Voulismeni

Temporary infrastructure also includes the competition course: buoys are placed and managed according to the type of competition and lifted at the end of the competition.

Water management

As regards the management of water resources, there are showers at Kimzu sea lodge (EOT beach).

Figure 16: Kimzu sea lodge (EOT beach) showers

Despite the intention to provide a water supply service, this has not been fully operational.

Figure 17: Water refill service

Energy management

Since the events take place during the day and are cancelled in the event of strong intensity, there is no significant energy consumption in the competition areas: the lighting is switched off for the duration of the event.

An electricity generator is used to inflate the start and finish inflatables.

Figure 18: Electricity generator

In addition, energy is consumed at the judges' and accreditment stations.

Figure 19: Judge’s station

Food and beverages activities

There is no catering service in the competition area, each athlete runs alone. Only plastic water bottles are provided to athletes in the competition areas.

It is noted that the local bar at the Kimzu sea lodge (EOT beach) uses glass and reusable glasses and bottles.

Figure 20: Glass and reusable cups at the Kimzu sea lodge (EOT bech)

Plastic water bottles are then provided to the athletes during the various competitions. The bottles are brought to the site by volunteers and members of the Agios Nikolaos On-sup club.

Figure 21: Delivery of plastic bottles

At EOT beach the bottles are stored cool in barrels full of water and ice (brought with the bottles). This system saves on electricity consumption.

Figure 22: Bottle storage system

Waste management

The waste produced during the competition in the 3 areas is collected according to the municipal regulations for waste collection and management. Specifically at the Kimzu sea lodge area (EOT beach), there are no waste collection bins, which are instead found in the athletes' area near the stage and a few other places in the competition area.

Figure 23: Waste bins

Biodiversity and natural capital

The event takes place in three maritime areas: a demarcated area in front of the municipal beach EOT, located a few kilometres south of the town of Agios Nikolaos; the lake of Voulismeni located in the centre of the town of Agios Nikolaos; and the stretch of sea along the coast from the beach of Plaka to the lake of Voulismeni.

The Eot beach is protected by artificial breakwaters that existed before the competition.

Lake Voulismeni has undergone interventions over time; in fact, it was connected to the city's port by a canal, over which a small bridge was built at the end of the 18th century.

For none of the 3 areas were any changes made or interventions carried out that would have an impact on the competition. In fact, the holding of the competitions has no impact on the local vegetation and fauna.

During the event, the sound impact is mainly attributable to the loudspeakers.

Figure 24: Breakwaters at EOT beach

1.4 Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the ICF SUP World Cup 2023 provided a total of 11 implemented best practices and 13 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 7: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	N.A.
Mobility	• Sharing information on the event webpage about the public transport (buses) available to reach Agios Nikolaos from the airport.
Use of materials	• Hellenic federation flags are reused at other events • The sticks of all flags, even those specifically dedicated to the event, are reused in other events • Reduced paper consumption for documents, information mostly uploaded online
Branding and merchandising materials	• No fan products are delivered
Infrastructures	• Prevalent use of existing structures • Existing temporary structures (e.g. stage, start and finish inflatables) are reused in other competitions
Water management	• Water refill system present
Energy management	• Using water-filled barrels with ice to keep water bottles cool while saving on refrigerator energy consumption
Food and beverages activities	• Use of reusable glasses and bottles at the local kiosko
Waste management	• Presence of separate waste collection in some areas
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 8: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Evaluate recommending the selection of accommodation also on the basis of environmental criteria (e.g. hotels with environmental certifications).
Mobility	• Evaluate providing information to athletes and spectators on how to reach the event venue by public transport. • Evaluate agreements with the local transport service to have discounts and promotions for athletes/spectators using this means. • Evaluate organising shuttles and joint transport for athletes/staff and sup. Evaluate the possibility of buses organised by the federation.

Aspects	Description
Use of materials	• Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of boards and paddles • Evaluate the use of numbers for competition in paper and ecological glue. • Evaluate the provision of shirts for athletes that can be used in different competitions without reference to a specific competition.
Branding and merchandising materials	• Evaluate the choice and/or design of reusable materials for club and federation flags.
Infrastructures	• Evaluating the possibility of using the screen overlooking Lake Voulismeni as a means of launching environmental awareness messages.
Water management	• Evaluate implementing and promoting the use of drinking water recharging stations
Energy management	N.A.
Food and beverages activities	• Evaluate eliminating the delivery of plastic bottles to athletes. • Evaluate raising awareness of the use of water bottles to be refilled at the free refuelling system.
Waste management	• Evaluate the possibility of establishing relations with the municipality to encourage the spread of separate waste collection in the areas covered by the competition
Biodiversity and natural capital	N.A.

B. Environmental audit on 3rd Mediterrenean Beach Games MBG (Discipline Ocean Racing Surf ski) Heraklion 15th September 2023

1.1. Participants

Auditors: Nicolò Di Tullio (Scuola Superiore Sant'Anna di Pisa)

National Federation Representative: Georgia Griva, Ioannis Skourtis (Hellenic Canoe Kayak, SUP, Surf Federation).

1.2. Context – Heraklion Mediterranean Beach Games

This report describes the environmental management practices implemented at the International Event 3rd Mediterrenean Beach Games MBG for the Ocean Racing Surf Ski discipline event held on 15th September at Heraklion (Karteros Beach), Greece. The 3rd MBG were held from the 9th September until 16th September. The Mediterranean Beach Games is a multi-sport event organized by the International Committee of Mediterranean Games (CIJM) since 2015. Pescara, Italy was awarded the rights to host the first edition of the Mediterranean Beach Games from 28 August to 6 September 2015. The sports at the multisport MBG events

are the following: 3x3 basketball, Beach handball, Beach soccer, Beach tennis, Beach volleyball, Beach wrestling, Surf Ski Kayaking, Finswimming, Karate, Kiteboarding, Open water swimming, Rowing, Triathle.

Heraklion, also known as Iraklion or Iraklio, is the largest city and the capital of the Greek island of Crete. It is a vibrant and bustling urban center that combines a rich historical and cultural heritage with modern amenities and a thriving tourism industry. Heraklion boasts a rich history dating back to ancient times. It was once the site of the ancient Minoan city of Knossos, which is famous for its labyrinthine palace and association with the myth of the Minotaur.

Karteros Beach is a beautiful coastal area located near Heraklion, just a few kilometers to the east of the city center. Karteros Beach is known for its natural beauty, featuring a long stretch of sandy shoreline along the northern coast of Crete. The beach is surrounded by picturesque landscapes, including cliffs, dunes, and rocky formations. The clear waters of Karteros Beach make it a popular spot for water sports enthusiasts. Visitors can enjoy activities such as windsurfing, kiteboarding, and paddleboarding. Rental equipment and lessons are often available. Karteros Beach is well-suited for families, as it offers a gently sloping seabed and calm waters, making it safe for children to swim and play. Karteros Beach is easily accessible from Heraklion, making it a convenient option for both locals and tourists. It's a short drive or bus ride from the city center, and there is ample parking available.

Overall, Heraklion city and Karteros Beach offer a combination of historical and natural attractions, making them both appealing destinations for travelers exploring the island of Crete.

Canoe and kayak ocean racing, also known as ocean paddling or surfski racing, is a water sport that involves competitive long-distance paddling in open water environments such as oceans, seas, and large lakes. This exhilarating sport combines elements of endurance, strength, strategy, and navigation as athletes paddle specialized craft over varying distances and conditions. The types of of Crafts used are:

A) Surfskis are long, narrow, sit-on-top kayaks designed specifically for ocean racing. They are typically longer and faster than traditional kayaks and have a rudder system to aid in steering. Surfskis are designed to excel in open water conditions, allowing paddlers to catch and ride ocean swells.

B) Ocean Racing Canoes: These are larger, open-cockpit canoes designed for ocean racing. They are more stable than surfskis and often have a team of paddlers, including single-person, two-person, or even six-person canoes, depending on the event.

Race formats can be A) Distance Races: Ocean racing events can vary in distance from a few kilometers to ultra-long races that span many miles or even hundreds of kilometers. The race length often determines the level of endurance required. B) Downwind Races: Many ocean races are downwind events, where competitors take advantage of prevailing wind and swell conditions to surf waves, making for fast and exciting paddling.

Various organizations govern and organize ocean racing events, such as the International Canoe Federation (ICF) and the World Surf Ski Series. National paddling federations also play a role in organizing events and supporting athletes.

The ocean racing surf ski events (male and female) are organised by the Organising committee of the 3rd MBG. The MBG is a multi-sport event promoted by the International Committee of Mediterranean Games (CIJM) since 2015.

The 3rd MBG organizing committee (OCMBG) and the City of Heraklion, Municipality of Hersonissos, Municipality of Malevizion co-organize the event.

The OCMBG manages the venue area during the event. The area belongs to the National Sport Center of Hiraklion (public entity) (NSCH). The area is maintained and managed by the NSCH.

Through a direct assignment from NSCH to the OCMBG: the OCMBG doesn't pay fee for the area but has to pay all the utilities and to provide the sport fields and infrastructures maintenance only during the event.

The Hellenic Canoe Kayak Surfing SUP Federation has assigned a responsible person for the event (competition manager) and the competition manager is in charge of relationships with international federations and technical delegates (that usually is nominated by the international federation for the sport). The competition manager from the HCKSSF and the technical delegate has to co-operate only for safe and correct delivery of the sport event.

The area of the MBG is located on the Beach of Kartesos and is composed of two main areas of sport facilities (for playing volleyball, beach tennis, beach soccer, beach wrestling, ecc) for a total of 8 team sport courts. The courts are surrounded by:

- container-style offices (15m x 3m, h 3m) in aluminum and plastics, 6 of whom for offices, 1 for f&b, and 12 for toilets and locker rooms (5m x 8m, h 3m)

- temporary plastic tents (various sizes and heights) for volunteers and distribution of materials, check-ins and marshalling of the athletes and media.

Eight open-air showers are located between tents and containers.

The whole village is surrounded by iron fences. The parking (approx capacity 200 city cars) is located between the two areas.

The beach is equipped with an air-vented arch for beach starts and arrivals or celebrations and with one removable plastic tent. The area of the beach dedicated for the competitions is 300m linear wide. The ocean field is almost 4km x 1 km wide.

There are two main entrances, one for each side of the areas dedicated to the fields of play. The access to the beach is free and public with 1 direct access from a gate into the fences of the team courts.

The venue is located 5 km from Heraklion airport and Heraklion city centre. No public railway is present on the Island of Crete.

It is possible to reach the venue firstly by plane, then by car or public bus. Information on how to reach the venue are available on website of MBG official website.

Figure 1: Heraklion and Karteros geolocation

Figure 2: Kartesos sport village parking

The event was attended by 9 nations for 37 athletes (19 males and 18 females). Six ocean racing referees and are also present. Six volunteers are at disposal to help during the surf ski competition.Athlets, sport staff and spectators share the same areas.

Figure 3a: On-land venue area

Figure 3b: In-water venue area

1.3. Environmental aspect

Accommodation for staff and athletes

The staff and athletes stayed in different hotels. Most of them were accommodated in Heraklion city center hotels, others were located in residences. The max distances of travel from the accommodations to the event site was of 12km.

They can reach the park by their own vehicles, such as cars or minibuses, but not on foot. Not easily on bike neither. Shuttle buses organized by the OC was on duty during the competition hours for all sports including Ocean Canoe Racing event. The hotels were not audited. However, the following best practices are worth mentioning:

- All the hotels provides minibus to reach airport.
- All the hotels are equipped with potable water refillers.

No environmental criteria are required by the Organising Committee, neither by the teams taking part into the event.

Mobility

Regarding the mobility of the staff and athletes of the 9 national teams registered for the event, it should be noted that they travelled mainly by cars or minibus or shuttle buses organzied for all sports including ocean racing event. A total of 8 buses (50 or more seats) were present in the parking area during the peak hours of the event (opening and closing ceremonies, prize giving, finals of the races, visits of local public authorities). A total of 30 +- 5 cars were present in the parking area during the peak hours of the event. . The 6 judges are not selected on a regional basis and travel independently of their national Olympic committees. All car or minibus are located in the parking are close to the venue.

No bike racks are present in the area and no e-bikes or e-scooter were present on the venue site. A car or light vehicles sharing service was not present in the area.

Use of materials

The equipment used by athletes in the international ocean racing surf ski competition consists of the canoe, paddle, leash and personal floating device. The surf ski is made of carbon fibre and painted. The racing paddles are double, also made of carbon fibre. The canoes do not require any treatment before the race or after the race. Some athletes use wax on their seats to reduce slippery surfaces. They can be cleaned with fresh water and limescale remover after the race, although this treatment mainly concerns canoes that have been in brackish water.

Figure 4: Athletes typical uniform for the competition

In general, the average life of a surf ski boats depends on the type of discipline: slalom canoes have an average life of few year (two to fifteen years). The buoys (4m x 4m) installed were made of palstic. They were fixed on the seabootom with iron anchors and tied with ropes.

Figure 5: Ocean racing field buoys

Figure 6: Examples of ocean racing surf ski kayaks

Figure 7: Athlete and coaches during the warm-up

Boats at the end of their life can be recycled or disposed of; boat management is the responsibility of the individual national team manager or of the athlete. Damaged boats are usually repaired when there is a following of young people to whom they are given to start the sport. Resin and carbon fibres are used for repair.

Regarding the use of chemicals, as we have seen, water and limescale remover are sufficient for cleaning boats. Regarding the choice of chemicals for the changing rooms and toilets, no environmentally certified products are chosen.

Fuel is consumed during the competition for rescue team (on 1 jet ski and 2 IRB) and for the referee and judging team (3 IRB). Due to the fact that multiple sport events took place on the same day and location, it has not been possible to quantify or estimate the quantity of fuel consumed by the boats for the ocean racing events.

Branding and merchandising materials.

Regarding branding and merchandising materials, there are multiple plastic banners. No totems in the park area, neither signaling on the main roads. The banners for the race are not reused.

No free gadget are distributed to the fans and spectators or athletes. Athletes accreditation consists of 1 badge holder and 1 plastified badge. At the end of the competition each athlete is awared by 1 printed certificate of participation.

Figure 8: Accreditation kit

The national teams (National Olympic Committees) provide athletes annually with a new clothing kit with the logo of the official sponsor, without this being customized to the competitions. The sport-specific equipment are provided by the Sport Federations, in the case of ocean racing it consists of: hats, Lycras and specific form-fitting uniforms adapted to ocean racing and often used in rowing too.

Figure 9: Plastic sponsor banner (type 1)

Figure 10: Rigid plastic sponsor banner in red box (type 3)

Infrastructures

The infrastructures are divided into fixed and mobile.

The fixed infrastructures are: open air showers, steel fences around the on-land competition area.

Mobile infrastructures are: control rooms, offices, toilettes, podium, one gazebo on the beach for the in-water races, gazebo on the on-land area, air-pumped arch for arrivals and finish of the races, one high base for camera-people and broadcasting to stream the ocean racing event.

Fixed infrastructures

Steel fences around the on-land competition area surround the two on-land event areas for a total of approx 300m x 200m each.

Open air showers are made of inox steel and have 2 ways of water, one from the top and one knee height. They're installed into a concrete wall 60cm tall and it is the only area of the competition area with parquet (most probably teak wood). The area is approximately 12m x 4m.

Figure 12: open air showers and steel fences

Mobile infrastructures are the following:

Control rooms. There is one printer and more than 15 lcd screens and/or laptops. The media control room is inside a structure made up of multiple gazebos and a a/c machine is installed in the middle of the gazebo. No doors define the water flow in the area.

Figure 13: control room and a/c machine

Figure 13a: control room and working area

Offices. Offices are for different working groups: international federation, operations and logistics, accreditation, media center, pick up of food. Each office is equipped with a/c, at least one printer, at least one computer and at least one screen and at least one fridge, moreover each office has its own private toilet. All bags for accreditation of nations are in organic material

Bar. Is located close to the beach venue. The bar is managed by a private company in according with the MBGOC and is inside the same container-like structures of the offices.

Figure 14: the bar as a container-like structures and inside of the bar

Rest rooms and toilettes. Toilettes (4 cubicles with wc and 4 washing basins) and restrooms (3 closed spaces with shower) are included in container-like structures. Each container for restrooms has an entrance area with a plastic bench and a plastic chair.

Figure 15: toilets and restrooms

Podium. Podium area is setup in the beach volleyball courts, and it made up of wood. Bleachers. There are 6 bleachers 50m wide and 7 rows of seats tall. Only one big screen is installed behind the podium or in correspondence of the bleachers between the beach volley ball and beach tennis courts. The screen is used only in prize giving ceremonies and to display team-played sports tournaments results.

Figure 16: podium

Gazebos. Gazebos are dislocated along the area and may serve as dressing rooms for athletes, sometimes chairs and tables are located outside or inside the gazebos. All gazebos are electrically supplied.

A gazebo on the beach for the water races, a gazebo on dry land, an air arch for the finish and end of the races. The air is pumped by an electric machine.

Figure 17: beach racing area gazebo

Figure 18: air-pumped arch

The protected area is countered by light plastic stripes to avoid stepping on the little dune.

Figure 19: dune area on the right of the photo and pebbles in front of the dune

The beach pebbles (bigger rocks) has been moved from the beach to let competitors run safer. This created an artificial hill on the beach.

Figure 20: the shoreline with pebbles, before their removal

Water management

With regard to water management, there isn't a particular strategy. No drinking water fountain in the public park is present. The water is provided by public aqueduct.

Energy management

Since the events take place during the day and are cancelled in case of heavy, there is no significant energy consumption in the event areas: the lighting is off for the whole duration of the event. This happens for surf ski event. Other events taking place during the night require artificial lighting (beach volleyball, beach soccer, ecc). The permanent facilities owner is responsible for the management of the energy resource. There are no green procurement requirements regarding energy supply.

Food and beverages activities

The local bar for spectators is managed privately, doesn't have any certification or particular procedure for the management of food and beverage. No waste sorting is applied.

Food and beverages for athelets, volounteers and referees is managed by a provate company. The organization doesn't have specific certification and does not have an eco-friendly approach. Menù options vary on a daily basis, and mainy consists of sandwiches composed of local products (feta, olives, oil, tomatoes) and sweet snacks.No meat is served in the menu. Volunteers and staff have their lunchbox for free composed of 1 water plastic bottle, one sandwich made of local products and 1 fruit. The lunch is given packed into an organic bag.

Waste management

Waste produced during the race the local public company in charge of pubic hygiene of the Cities on the Island. As in all public spaces are waste bins without separation of waste. The waste is separated when at the dump by the public enterprise.

Biodiversity and natural capital

The event takes place in delimited area of the Sea of Crete, not far from the airport of Heraklion. On the beach and in water competition area there aren't any fixed structures. The seabottom bed in front of the beach arrival and finish has 4 concrete mooring posts to fix buoys.

Presence of the event doesn't interact with local wild vegetation and fauna, several birds that have their nests in the tress surrounding the beach competition area and fishes and marine wildlife is present in the water.

During the event, the sound impact is mainly attributable to the speaker and music.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the 3rd Mediterranean Beach Games provided a total of 9 implemented best practices and 16 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 9: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of pedestrian paths
Use of materials	N.A.
Branding and merchandising materials	• No free gadgets for sponsors and clubs • No fan products are delivered
Infrastructures	• Predominantly use of facilities already in place • Use of non fixed facilities
Water management	N.A.
Energy management	N.A.
Food and beverages activities	• Vegetarian menu
Waste management	• Presence of one waste collection but with separation at the waste disposal site
Biodiversity and natural capital	• Absence of in water impacting infrastructures on wildlife

Observations and recommendations

Table 10: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels with environmental certifications) • Exchanging information on green certified accommodation near the venue with the clubs
Mobility	• Provide information to athletes and spectators on how to reach the event location by public transport. • Consider a service of e-mobility for rent
Use of materials	• Evaluate the use of ecolabel detergents • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials) • Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of canoes and paddles
Branding and merchandising materials	• Evaluate to avoid using single-use merchandising

Aspects	Description
Infrastructures	• Do not install a/c in open-air tents
Water management	• Evaluate to add public and free water stations to refill bottles
Energy management	• Refer to a local company who produces energy from renewable sources
Food and beverages activities	• Evaluate the use of compostable cups in food and beverage area
Waste management	• Evaluate establishing relations with the municipality to encourage the dissemination of separate waste collection,at least during competitions
Biodiversity and natural capital	• Evaluate to leave and to engage athlete, staff, volunteers, locals, ecc into awareness raising campaign about the importance of local biodiversity and natural capital • Evaluate the location also through environmental criteria

C. Environmental audit on canoe-kayak sprint (Discipline 27th Hellenic Youth National Championship Canoe-Kayak Sprint) Schinias Olympic Rowing & Canoeing Centre, Marathonas Greece, 14,15 & 16 JULY 2023

1.1. Participants

Auditors: Georgia Griva, (Hellenic Canoe-Kayak, SUP, Surfing Federation)

National Federation Representative: Georgia Griva, Ioannis Skourtis (Hellenic Canoe Kayak, SUP, Surf Federation).

1.2. Context – Olympic Rowing & Canoeing Centre, Schinias Marathon

This report describes the environmental management practices implemented at the 27th Hellenic Youth National Canoe-Kayak Sprint Championships, held in Olympic Rowing & Canoeing Center, in Marathon – Attica, from 14 to 16 July 2023.

HELLENIC CANOE-KAYAK
SUP - SURFING FEDERATION

Figure 1: Organizer logo

The Location

The competition took place in the Olympic Rowing & Canoeing Centre, which is located on the east of Attica and located approximately 50 km east of Athens, the capital of Greece.

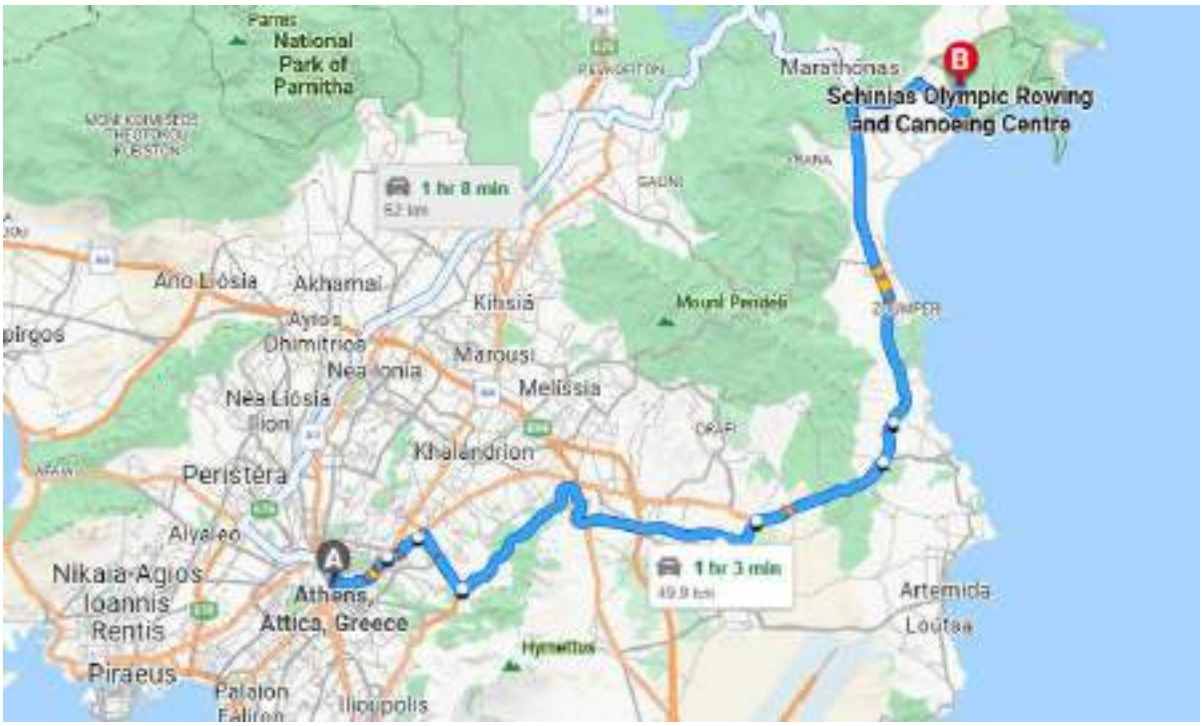


Figure 2: Schinias Olympic Rowing & Canoeing geolocation

The Schinias Olympic Rowing and Canoeing Centre was built to host the rowing and canoe sprint events at the 2004 Summer Olympics in Greece.

It is the most northerly venue of the 2004 Games situated to the east of the town of Marathon. It covers 1.24 km^2 and has a spectator capacity of 14,000. In addition to the competition course there are also buildings that are used for the needs of the two federations such as the hostel where 45 rooms can accommodate almost 100 athletes, boat storage, restaurant etc. It is a part of Schinias National Park.

Figure 3: Schinias Olympic Rowing & Canoeing in the National Park

Schinias Olympic Rowing & Canoeing Centre is located almost 50 km from the center of Athens, 30 km from the International Airport El.Venizelos and 35 km from the main port of Piraeus. However, access to the venue is not easy with the public means of transport. There are three different services (KTEL interurban buses) passing from Schinias Olympic Rowing and Canoeing Centre. KTEL buses going to Souli village and/or Agia Marina village pass from the west side of the venue. The nearest bus stop is located in Kato Souli and Schinias Avenue intersection. KTEL buses going to Schinias village pass near the exit of the venue. The nearest stop is located on Schinias Avenue. If someone has made arrangements from the "Eleftherios Venizelos Airport", he/she can drive directly to Schinias using the Interchange of Attiki Odos towards Elefsina. Otherwise, a metro service directly from the airport can be used to get to Athens and after that to use the KTEL buses as mentioned above. Federations and clubs they usually use their own means of transport (car and/or minivans) with which they are transporting their boats with trailers.

The Sport

Canoe sprint takes place on a flatwater course and races are contested by two types of boat, canoe (C) and kayak (K). In a canoe, the paddler competes in a striding position using a single-blade paddle, in contrast to the double-bladed paddle used in a sitting position in a kayak.

Figure 4: The race of Kayak 2 mix (K2) category

At international level the discipline is competed at four distances from 200m to 5000m, both individually and in teams of up to four. Each discipline is categorised by boat type, number of competitors per boat, gender, and race distance, meaning the example of C2M 500m is the canoe male doubles 500m.

Both canoes and kayaks compete in the sprint discipline and are distinguished on the results sheet by their initial letter C and K followed by the number of competitors in the boat, the gender and then the distance. For example, K1M 200m is kayak men's singles over 200 meters.

In competition races athletes are split into nine lanes that are allocated randomly in the initial heats; subsequently lane positions are set by qualification time: five being the fastest to qualify, then six, four, three, two, seven, eight, one and nine.

The Venue

During construction there was controversy over environmental destruction as wetlands were remodeled for its construction. It was constructed and operates under strict environmental conditions (ENVECO 1997, Romas et al 2005a). Significant landscape alterations – such as, e.g. the creation of large parking areas – were avoided. The Rowing Centre comprises two interconnected semi-natural lakes (earthen reservoirs, mild inclines) and was expected to have a positive impact on the ecological functions of the biotope. The location and design principles adopted for this facility aimed at restoring the natural hydrological regime and suppressing other disturbing uses. Water diverted from the spring to the sea has now been conducted to the new lakes; their overflow has been driven to the wetland. Specific benefits for the natural environment resulted. Although not fully completed until January 31, 2004, it held its first successful competition, the World Rowing Junior Championships, in August 2003. The European Juniors & U23 Canoe-Kayak Sprint Championships, in August 2006 was the 1st post international event were hosted in this venue.

Nowadays the Schinias Olympic Rowing & Canoeing Centre is one of only three FISA-approved training centers in the world and is used mainly by the Hellenic Canoe-Kayak, SUP, SURFING Federation as well as the Hellenic Rowing Federation for the National Championships and as a training area. Furthermore, other sports like cycling is using the venue but not the water course. The Venue belongs to the Hellenic Public Properties Co and during the National Championships the Hellenic Canoe-Kayak Federation is authorized to use the facilities with a fee of 500Euro/day plus the electricity consumption. The Venue has 4 main buildings (VIP Compound – Athletes' Compound – Rowing Boat House – Kayak Boat House) and accross the water course 4 buildings (Results Office – Start Tower – Finish Towers). Additionally buildings are used for technical equipment and services and access is forbiden.

Figure 5: Venue Tour

During the competition there were not used all buildings but additionally some temporary insfractures were also installed.

The water course is approximately 90m width, 2,5m depth and 4.000m length considering around the water course.

There is only one main entrance to the venue. A container-style is used as access control room (2m x 1,5m, h 3m) in aluminum and plastics. The parking (approx capacity 2000 city cars) is located just outside the Venue. Public can enter on feet. Cars and vans are allowed entering the venue only by clubs and personel or people involved with the event who are nominated by the organizer according to a list.

Building grandstands are located outside the “VIP Conpound” were the ceremonies take place.

Figure 6: spectators grandstand

Athletes, sport staff and spectators share the same areas.

The competition

The *27th Hellenic Youth National Championships Canoe-Kayak Sprint 2023* was organized by the Hellenic Canoe-Kayak, SUP, Surf Federation and only club-members of the federation could participate with their athletes. In the Youth National Championship participates athletes from the age of 8-14 (male and female).

This competition was attended by 278 athletes representing 20 national clubs-members of the federation.

According to the MOU signed by the Cyprus Canoe-Federation and the Hellenic Canoe-Kayak, SUP, SURFING Federation, athletes from Cyprus could also participate in this event, but as a demonstration participation. Accordingly, in that event 8 athletes from Cyprus participated as well.

The Hellenic Canoe Kayak, Surfing SUP Federation has assigned a 3 member's Organizing Committee which was responsible for the whole event, the safety and correct delivery. Additionally, 13 judges were also present, 5 permanents employees of the federation and 20 other staff were on duty for this event.

Figure 7: Competition for K1 cadits

Figure 8: Boat control area

1.3. Environmental aspect

Accommodation for staff and athletes

The staff and athletes stayed in different hotels. In "Athletes' Compound" staff, personel and organizing committee's members were accommodated. A system of bed distribution were used and some clubs accommodated in this hostel too. The rest athletes and judges were accommodated in Schinias, Marathonas, Nea Makri in hotels or BnBs, and very few were staying at their homes in Athens traveling each day. The maximum travel distances from rented accommodation to the event venue were 15 km.

They could reach the venue by their own vehicles, such as cars or minibuses, but not on foot. Not easily on bike neither.

Athletes hotels in Schinias Venue do not follows any environmental criteria in its operation. However, no environmental criteria were applied in the selection of the other hotels. Hotels were selected based on their distance from the venue and the price offered. The hotels were not audited.

Figure 9: Hostel (bathroom – room)

Mobility

Regarding the mobility of the athletes and the rest people involved in the event, it should be noted that they travelled mainly by cars or minibus. Only 1 club coming from Grete and 1 from Salamina Island were used ships until Piraeus port.

Clubs' cars or minibuses and trailers were located in the venue close to the starting point. Boats were transported mostly by trailers.

Every club was responsible for transporting the total number of boats for all its athletes. Trailers were left in the venue for the whole competition and cars and mini vans were used for athletes' daily transportation from/to their accommodation places.

In the venue there were several coaches and athletes who were using bicycle or e-scooters to follow the races on land.

Figure 10: trailers were left in the starting area

Figure 11: coaches could follow the race by bicycles.

Use of materials

The equipment used by athletes in canoe-kayak sprint races consists of the boat, paddle, and, sometimes, the spraydeck.

Boats and paddles are mainly made of carbon fibre with some elements made of plastic. Average use of boats and paddles are 15-20 years. The long-lasting life of the boats depend on boats quality and users treatment. Also, when boats are used in salt water it is important those to be washed after every used. Especially in Greece where the use of the boats is mostly on sea water. Also, limescales remover may be used. The boats do not require any special treatment before the race or after the race.

Figure 12: boat-paddle-spraydeck are used by
the athletes for canoe-kayak sprint events

In case of damage, canoe-kayak boats can be repaired. Usually, this action is taking care by the coaches themselves and sometimes from local workshops which can undertake serious damaged boats.

Boats that are no longer suitable for competition are usually sold for amateur use or are left to younger athletes for training. Boats at the end of their life can be recycled or disposed of; boat management is the responsibility of the individual clubs.

One must also consider the diesel fuel consumed during the competitions: during the event 3 rescue boats and 4 catamaran, with judges on, were used.

Figure 13: catamarans were used for judging

Figure 14: Rescue boats

During the Technical Meeting (Team Leaders Meeting) before the race, a copy of start list, the race number (plastic) (10cm*15cm) for each athlete and safety pins were distributed to the team leaders in plastic bags. Team leaders were responsible for turning back their athletes' number at the end of the competition and organizer reuses them for the next competition. Those who do not return the numbers or in case of loss, there is a charge of 5 Euro per number.

Figure 15: technical meeting took place at the restaurant area

Figure 16-17: plastic bags were used for delivery a set of start list and start number

Figure 18: each athlete was wearing his/her unique plastic number provided by the organisation

Participants are obliged to put on their boats their lane number which is made from PVC (Polyvinyl Chloride) (15cm*20cm). Every participant club brings its own numbers (set of numbers No 1-9) which they are using them during the event. The number of sets holding each club depends on the number of athletes and participation of each team in the event. These are re-usable.

Two boards were used for the whole event. A copy of the start list of the day and the results were posted by the organizers on the boards. Only 2 set for official results signed by the chief official for validation and 30 sets of starting lists distributed to the clubs, judges organizing committee, results office, and administration were printed.

Viber application and web were used for informing the participants and stakeholders.

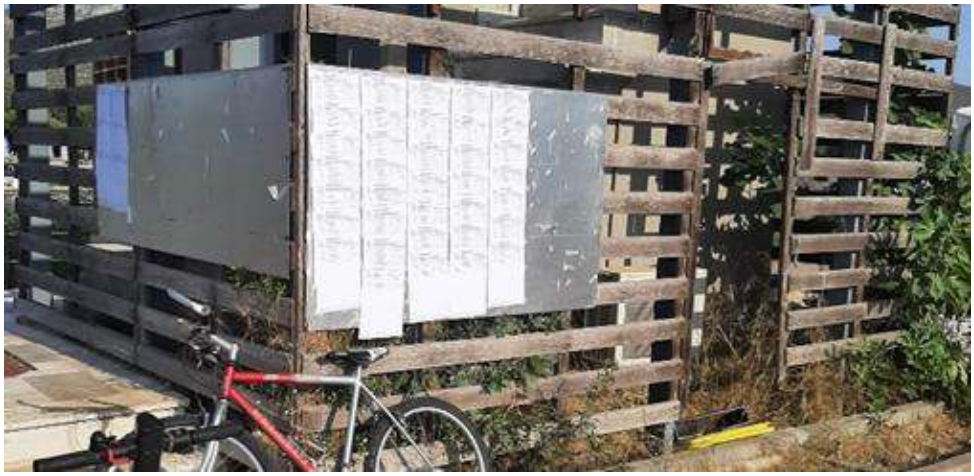


Figure 19: two boards were used for posting the results and start lists

No printed invitation, bulletin or any other information guide was offered. All information were distributed via e-mail or web.

Regarding the choice of chemicals for the changing rooms and toilets, no environmentally certified products were chosen.

Branding and merchandising materials.

In terms of branding materials, there were numerous plastic beach flags of the Hellenic Federation which are used for several times over the years for other competitions as well, until they broke due to wear and tear. Flags were fixed on black plastic sticks.

Figure 20: Flags of the Hellenic Canoe, Kayak, Sup and Surfing Federation

Infrastructures

Most of the infrastructures regarding this event were permanent and consisted of following objects:

- "Athletes Compound" Hostel/Restaurant
- Start Tower
- Finish Towers
- Results Office
- Administration Office
- Boat House/storage
- Grandstands (on VIP Compound)

The mobile infrastructures are divided into.

- Canteen
- Chemical toilets
- Finish tower of 200m for judges
- Podium
- Umbrellas and tents for judges
- Boys for course orientation
- Pontoons for embarkation/disembarkation
- Racks for boats

Specifically:

- 6 eco-friendly buildings for covering the base competition needs.
- 1 Building “Athletes Compound” in which on the 0 floor operates the athletes catering services during training camps and/or competitions. On 1st floor there are 45 rooms with individual bathroom from which 2 are for disabled people. In total about 100 people can accommodate in full operational period.
- 1 Building “Boat Storage” in which all equipment and boats were stored.
- 1 container-style (4m x 1,5m, h 3m) were used as a kiosk in aluminum and plastics at the start line. During the ceremony another kiosks were used situated in the VIP Conpound (in the grandstands).
- temporary plastic tents and umbrelas (various sizes and heights)
- steel constraction as a finish line for the judges in 200m
- embarkation and disembarkation wooden pontoons are installed in the water course. 8 permanent wooden pontoons are situated at the start line for the starting procedure. Before each start, volunteers were holding each boat, for boats alignment. Pontoons are used by both sports, rowing, and canoeing and remains on the water all year.

Figure 21: wooden pontoon at the start

Figure 22: eco-friendly buildings in the venue

Figure 23: results office

Figure 24: administration office

Figure 25: finish line tower for judges

Figure 26-27: tents and umbrellas were used for judges needs.

Figure 28: start line on the roof of the administration office

Figure 29: a steel construction was used for finish line in 200m

Figure 30: a canteen was operated at the start/finish area

Figure 31: chemical toilettes were used at the start-finish area

Temporary infrastructure also includes the competition course: buoys are placed and managed according to the type of competition and remains after the end of the competition. Both federations (rowing and canoeing) are using the lanes for training and competition purposes.

Figure 32: competition lanes are set-up by boys

Boat racks are distributed in the starting area where clubs can store their boats temporarily for the events. These are remaining at the same place and are used by both federations, canoeing and rowing.

Figure 33: boat racks were used by the clubs.

Podium were used for the awards ceremony which is made up of plastic and re-used the last 19 year (since olympic games).

Figure 34: podium was used for the award ceremony

Water management

As regards the management of water resources no showers were provided during the event. Bottles of water were distributed to all staff, judges and personnel. At the end of each race bottled water were also available to the athletes. In the athlete's restaurant a water provider machine was available for all athletes. Plastic glasses were used for water consumption.

Figure 35: water distribution at the finish line

Figure 36: a water machine at the restaurant

Energy management

Since the event takes place during the day and are cancelled in the event of strong intensity, there is no significant energy consumption in the competition area: the lighting is switched off for the duration of the event.

By signages visitors are encouraged to turn off the lights where is not necessary.

The energy supplier of Olympic Rowing & Canoeing Centre is a local company (DEH). According to their website there is a plan for producing energy from renewables resourses improving sharing solution and encaraging by rewards to individuals or companies for using green energy and circular economy. By providing saving tips, promoting solar energy

resources etc (more in DEH website [www.dei.gr)](http://www.dei.gr)

Figure 37: Signs encourage for turning off the lights.

Food and beverages activities

There is no organized catering service by the organizer, each club make its own arrangements for their athletes. Only plastic water bottles were provided to the athletes in the competition areas.

The local kiosk for spectators is managed privately, does't have any certification or particular procedure for the management of food and beverage. No waste sorting is applied.

Food and beverages for athletes were also managed in the venue by a private company. The owner doesn't have specific certification and does not have an eco-friendly approach. Menù options vary on a daily basis, and mainly is focused on athletic diet. No plastic plates or cutlery are used. Water is offered by a main water machine available to clients but in plastic glasses.

No food was prepared in the restaurant's kitchen but was brought from catering facilities.

Figure 38: athletes catering in the venue

In the venue there is an ice cubes machine from which the ice is collected for the ice-boxes and coolers keeping the water cool.

Figure 39: ice-cube producing machine

Waste management

Waste produced during the race is collected by the local public company in charge of public hygiene of the Cities. In all public spaces there were waste bins without separation of waste. The waste is separated when at the dump by the public company.

Figure 40: Waste bins

Biodiversity and natural capital

The event takes place in the Olympic Rowing & Canoeing Centre, which is situated in Schinias the urban of Marathonas, an area with an heritage as from there in the 1st modern Olympics in 1896 started the marathon race which until known remains the most popular race in Greece and globally. The Schinias Olympic Rowing & Canoeing Centre is part of the Schinias National Park, a protected area part of the most important coastal ecosystem of Attica. Schinias National Park is under of the supervision of the Body "National Park of Schinias-Marathon Management Body" which was established with the aim of protecting, preserving, managing and

upgrading nature and landscape, as a natural heritage and valuable natural resource, in the land and sea area of Schinias – Marathon, which is distinguished for its ecological, aesthetic, scientific, geomorphological, cultural and educational value, with its designation as a National Park.

Presence of competitions doesn't interact with local wild vegetation and fauna, several birds that have their nests at the race area in close proximity to small sandy areas.

During the event, the sound impact is mainly attributable to the speaker and music.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the 27th National Youth Canoe-Kayak Sprint Championship provided a total of 17 implemented best practices and 17 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 11: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of pedestrian paths • A limited number of cars are allowed to enter the venue. • Bicycles or e-scooter or walking are used by the visitors and coaches. • Mass transportation of athletes and boats by each club.
Use of materials	• Boats and athletes/boat numbers are reused at other events. • Limited production of paper. Technology is used for information
Branding and merchandising materials	• Hellenic federation beach flags are reused at other events. • No fan products are delivered
Infrastructures	• Prevalent use of existing structures • Existing temporary structures (e.g. pontoons, finish tower for judges in 200m, boat racks) are reused in other competitions

Aspects	Description
Water management	N.A.
Energy management	• Signages encourages visitors to turn-off lights
Food and beverages activities	• Use of reusable plates and cutlery at the restaurant • Limited number of food production upon request • One machine in operation for ice-cube production for cooling the water in iceboxes
Waste management	• Presence of separate waste collection but with separation at the waste disposal site
Biodiversity and natural capital	• Absence of in water impacting infrastructures on wildlife (The location and design principles adopted for this facility aimed at restoring the natural hydrological regime and suppressing other disturbing uses)

Observations and recommendations

Table 12: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Evaluate recommending the selection of accommodation also on the basis of environmental criteria (e.g. hotels with environmental certifications).
Mobility	• Evaluate providing information to athletes and spectators on how to reach the event venue by public transport. • Evaluate agreements with the local transport service to have discounts and promotions for athletes/spectators using this means. • Evaluate organising shuttles and joint transport for athletes/staff. • Evaluate the possibility of buses organised by the clubs/federation for stakeholders.
Use of materials	• Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of boats and paddles. • Evaluate the use of ecolabel detergents. • Using eco-friendly bags for material distribution to the clubs • Promote and implement a system for collecting plastic bottles after use. • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials)

Aspects	Description
Branding and merchandising materials	NA
Infrastructures	NA
Water management	• Evaluate implementing and promoting the use of drinking water
Energy management	• Evaluate the possibility to raise awareness of the venue owner to engage an eco-friendly system for energy self-production
Food and beverages activities	• Evaluate eliminating the delivery of plastic bottles to athletes. • Evaluate raising awareness of the use of water bottles to be refilled at the free refuelling system • Evaluate the use of compostable cups in food and beverage area
Waste management	• Evaluate the possibility of establishing relations with the municipality to encourage the spread of separate waste collection in the areas covered by the competition.
Biodiversity and natural capital	• Evaluate to leave and to engage athlete, staff, volunteers, locals, etc into awareness raising campaign about the importance of local biodiversity and natural capital

NATIONAL CANOE AND KAYAK FEDERATION OF ITALY (FICK)

A. Environmental audit DECK project on Internationale Sprint Race (Discipline Canoe Sprint) Milan 15 April 2023

1.1. Participants

Auditors: Niccolò Maria Todaro, Rachele Stranieri (Scuola Superiore Sant'Anna)

National Federation Representative: Anna Elisabetta Merlini (Federazione Italiana Canoa Kayak)

1.2. Context – Idroscalo Park of Milan

This report describes the environmental management practices implemented at the International Sprint Canoe Race event held on 15-16 April 2023 at the Idroscalo Park of Milano in Segrate, Italy.

The 200- and 500-metre races of the International Sprint Canoe Race were organised by the Organising committee consisting of the Italian Canoe and Kayak Federation (FICK) and the Idroscalo Club of Milan. The event was attended by 76 clubs, including six national teams (Italy, Austria, Slovenia, Hungary, Lithuania, Israel) and 597 athletes. 12 referees and 7 timekeepers were also present.

The event took place at the Idroscalo Park in Milan, where there is a 1.6 km² artificial lake. The park is only 8 km from Milan's Cathedral and is part of the Metropolitan City of Milan, between the municipalities of Peschiera Borromeo and Segrate, adjacent to Linate Airport. The Metropolitan City of Milan owns the park, which also houses the headquarters of the CAP Group, the public company that manages the integrated water service in the metropolitan area.

The park is open to the public every day from 6:30 am to 9:00 pm from monday to friday and from 7:30 am to 9:00 pm on Saturdays, Sundays and holidays.

It is possible to reach the park by car, bus and bicycle. The Segrate railway station is 5.6 km away and the Linate metro station is 2.1 km away the west entrance. Information on how to reach the entrances depending on the means of transport used is shared on the Idroscalo park's website. Access to the park by car is not permitted. The pedestrian entrances to the park are located on both banks (East and West) and are served by special car parks, indicated on the park website.

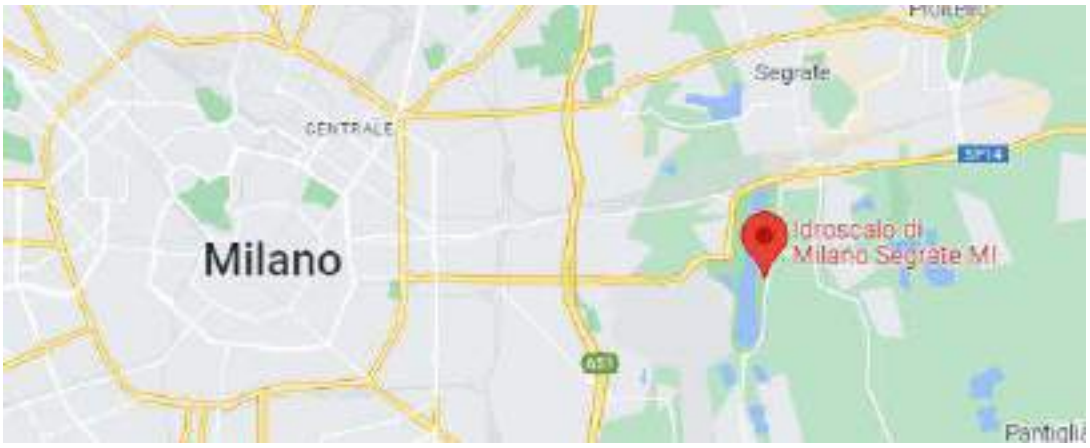


Figure 1: Geolocation of the Idroscalo Park of Milan

Figure 2: Map of Milan's Idroscalo Park

There are two areas of the park involved in the competition. A tribune area, where the tribunes, bar, podium and arrival tower are located, and an athletes' area, where the clubs' buildings and stands are located. In order to access the Internationale Sprint Race event, the entrance to the park was the East Tribune Entrance.

Figure 3: East tribune entrance

Figure 4: Idroscalo Park Regulation

1.3. Environmental aspects

Accomodation for staff and athletes

The staff and athletes stayed at the Moxy Milan Linate Airport, the Hotel Riviera, the Hotel Montini and the Best Western Air Hotel Linate, which are located close to the Idroscalo park. They reached the park by their own vehicles, such as cars or minibuses, to which the canoe trolleys were attached.

Figure 5: Walking distance from Moxi Hotel to the East Tribune Entrance

Figure 6: Walking distance from Riviera Hotel to the East Tribune Entrance

Figure 7: Walking distance from Montini Hotel to the East Tribune Entrance

Figure 8: Walking distance from BW Air Hotel to the East Tribune Entrance

The hotels were not audited. However, the following best practices are worth mentioning:

- The four hotels are located in the proximity of the park. It should be noted, however, that the entrance to the athletes' area and the competition field is the east entrance, and only one hotel of the four (Hotel Riviera) is a 12-minute walk away. The other hotels require at least a 30-minute walk.
- The Moxi Hotel is LEED certified and shares information on its carbon footprint per room per night.
- Hotel Montini (furthest from the east entrance) provides bicycles for guests.
- The Best Western Air Hotel Linate has joined the Stay For The Planet network, dedicated to hotels whose virtuous behaviour protects and promotes respect for the environment, acting in five specific areas: Energy, Water, Waste, Purchasing, Behaviour. The main objective is to reduce CO2 emissions by 20% by implementing energy efficiency actions and reducing the environmental impact through responsible behaviour. From an operational point of view, the hotel has implemented actions of continuous monitoring of energy and water consumption, recycling and separate collection of waste, promotion of eco-friendly behaviour also by guests, and attention to energy efficiency.

No environmental criteria are required by the Organising Committee and the only green criteria applied directly by the clubs for the selection of accommodation is the proximity to the Idroscalo park. In selecting accommodation, clubs are required to apply an economic criteria, the accommodation cannot have more than 3 stars.

Mobility

Regarding the mobility of the staff and athletes of the 76 clubs registered for the event, it should be noted that they travelled mainly by car or minibus to which they attached their canoe transport carts. Clubs from Sardinia used the ferry for staff, athletes and equipment.

A total of 114 vehicles were used by the 597 athletes to reach the event, with an average of 1.5 vehicles per club. The 12 referees and 7 timekeepers are not selected on a regional basis and travel independently of the clubs.

It is not possible to enter the park with motor vehicles. Only vans pulling boat carts or cars with boats on the roof may enter, exclusively to unload carts and boats. Within the park there is a cycle track and there are several racks in the athletes' area. Many clubs have their own bicycles to move around the park and follow the competitions.

Figure 9: Cycle track

Figure 10: Rack in the athletes' area

The metropolitan city of Milan has electric vehicles to move around the park.

Figure 11: Electric car of the metropolitan city of Milan

Use of materials

The equipment used by athletes in the international sprint canoe competition consists of the canoe and paddle. The sprint canoe, which is long and narrow, is made of carbon fibre and painted. The racing paddles are double, also made of carbon fibre. The canoes do not require any treatment before the race or after the race. If necessary, they can be cleaned with water and limescale remover after the race, although this treatment mainly concerns canoes that have been in brackish water.

In general, the average life of a canoe depends on the type of discipline. Sprint canoes can last up to several years, unlike polo canoes, which have an average life of one year.

Figure 12: Sprint canoe

Figure 13: Racing paddles

Figure 14: K4

Figure 15: Canoe polo

Figure 16: Safety helmets (canoe polo)

Figure 18: Safety jackets (canoe polo)

Figure 17: Canoe polo paddle

Figure 19: Canoe polo ball

Boats at the end of their life can be recycled or disposed of; boat management is the responsibility of the individual clubs. Damaged boats are usually repaired when there is a following of young people to whom they are given to start the sport. Resin and carbon fibres are used for repair.

Regarding the use of chemicals, as we have seen, water and limescale remover are sufficient for cleaning boats. Regarding the choice of chemicals for the changing rooms and toilets, no environmentally certified products are chosen.

Fuel is consumed during the competition by the 7 judges' boats and the 2 rescue boats, all powered by petrol engines.

Branding and merchandising materials.

Regarding branding and merchandising materials, there were no branding materials dedicated exclusively to the event. No sponsor gadgets are distributed to the fans. The FICK provides athletes annually with a new clothing kit with the logo of the official sponsor Kappa, without this being adapted to the competitions.

Infrastructures

The infrastructures are divided into fixed and mobile.

The fixed infrastructures in the tribune area are the tribunes on the side of the race course and above the bar with plastic seats, the arrival tower, owned by the Metropolitan City and managed by the Idroscalo park, and the podium.

Figure 20: Tribune area

Figure 21: Arrival tower and podium

Figure 22: Race course side tribune and podium

Figure 23: Tribune above the bar

Figure 24: Podium

The arrival tower, rented for the two days of the event by the Idroscalo Club of Milan, is a multi-storey structure with a hall on the ground floor for atheltes' accreditation and on the top floor the hall occupied by the timekeepers. Included in the amount paid for rent are the costs for energy and water consumption.

Figure 25: Timekeepers' room at the arrival tower

The athletes' area includes the facilities of the various clubs, changing rooms, gym, toilets and a catering area managed by the Idroscalo Club.

Figure 26: Athletes' area

Figure 27: Idroscalo Club of Milan house

Figure 28: Toilette

Figure 29: Gym

The race course consists of starting blocks, electronically powered devices that unlock at the same time, subacqua cables to activate the starting blocks, buoys delimiting lanes and finishing buoys. The race course is fixed, also used for training, with the starting blocks and finishing buoys removed.

Figure 30: Race course

In both areas there are also mobile structures. In the area of the tribunes accessible to all, there are three suppliers' gazebos where sport equipment, gadgets and clothing are sold. In the athletes' area are the gazebos of guest clubs participating in the competition: such gazebos serve as dressing rooms for athletes, sometimes chairs and tables are located outside the gazebos, and the carts and stands on which the canoes are placed.

Figure 31: Gazebos tribune area

Figure 32: Gazebo of a club

For the purposes of the competition there are not intrusive structures.

Water management

With regard to water management, it should be mentioned that the park houses the CAP headquarters and there is a system that supplies drinking water. In particular, there are several drinking water fountains outside the club facilities in the athletes' area. The same water is used to clean the canoes. There is no dedicated washing area.

Figure 33: Drinking water fountains

Energy management

Since the events take place during the day and are cancelled in case of heavy rain and lightning, there is no significant energy consumption in the event areas, as the lighting is off for the whole duration of the event.

In addition, the permanent facilities are owned by the Metropolitan City of Milan, which is responsible for the management of the energy resource.

The organising company, the Idrosalo club of Milan, paid a fixed sum to be able to use the facilities where energy consumption is already included. There are no generators and in the athletes' area electricity is supplied by the clubs' fixed facilities.

Food and beverages activities

The bar in the tribune's area is not managed by the Idroscalo Club of Milan. Instead, the catering service is managed in the athletes' area. The organising company has chosen the catering company SODEXO, which has ISO 14001 certification, EMAS registration, and sustainable sourcing, i.e. MSC and ASC certification, related to the world of sustainable fishing and fish products in general. The website also claims to select seasonal and local agricultural products.

The number and type of meals to be served on the days of the event were previously indicated, so as to reduce food leftovers. Based on requests, a vegetarian menu was also included.

The crockery was made of non-recycled plastic, water was supplied in plastic bottles, and plastic and dry waste collection bins were placed in the dining area.

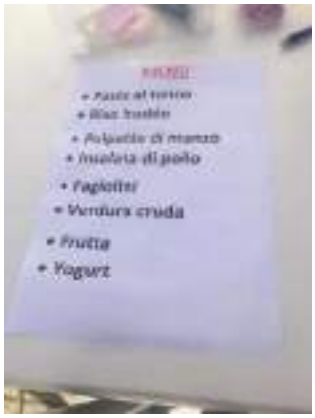


Figure 34: Menu

Figure 35: Crockery set

Figure 36: Plastic water bottles

Figure 37: Catering area

Figure 38: Waste bins in the catering area

Figure 39: Waste

As emerges from the interview with the Idroscalo club's catering manager, leftover food is offered to the athletes and staff members at the end of the day and, if there are leftovers, these are taken to charity by the Idroscalo club in Milan. Food not accepted is thrown away. Water is also distributed in plastic bottles in other areas, such as in the timekeepers' room.

Waste management

Waste produced in the Idroscalo park is collected and managed by AMSA, the waste manager for the Metropolitan City of Milan. There are waste bins at the park but no separate waste collection is carried out. Separate waste collection is carried out at the Idroscalo Club, but the separated waste is collected by AMSA and there is no guarantee that the waste will be sorted by type and the club expresses fear that once collected, it will all be mixed together.

Figure 40: Idroscalo park waste bins

Figure 41: Waste 2

Figure 42: Waste from toilette

Figure 43: Idroscalo park waste bins 2

Figure 44: Separate waste collection in the Idroscalo club

In the tribune area the bar, which is not managed by the Idroscalo Club, does not collect waste, in line with the management of the park by AMSA, as can be seen from the photos below.

Figure 45: Waste collection from the bar

Biodiversity and natural capital

The event takes place on Idroscalo lake. During the event, the sound impact is mainly attributable to the speaker and starting shots. In addition, the 6 judges' boats and 2 rescue dinghies, with petrol engines, present on the race course were also responsible for the sound impact. There are no music stations.

Figure 46: Judges's boat

The fauna in the park consists of ducks, turtles and fish. In 2023 the lakebed has undergone major dredging work. Invasive algae on the bottom tended to infest the lake and get caught in the paddels. The sports clubs present at the Idroscalo reported the problem to the Metropolitan City of Milan, which intervened with a barge and a crane, dredging only the part of the bottom that corresponds to the metres of the competition field. No intervention was carried out on the sides of the competition field, so it is likely that the algae will again invade the entire lakebed. The intervention has not been discussed with the sports clubs concerned.

The effects of the drought are visible. In the last eight months, the lake has subsided by two metres. This situation is worrying for the future holding of canoe and kayak competitions; the practice of some sports such as surfing, which has a dedicated area in the lake, have already had to be suspended.

Figure 47: Lowered lake level - Drought effects

Figure 48: Lowered lake level - Drought effects 2

Figure 49: Lowered lake level -Drought effects 3

1.5 Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the Internationale Sprint Race provided a total of 15 implemented best practices and 13 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 13: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of bicycle lanes • Presence of bike racks • Access to the Idroscalo Park is forbidden to cars or other unauthorised motorised vehicles. • The Idroscalo Park can be reached by public transport and there is a bicycle lane that connects the Park with the city centre of Milan
Use of materials Errore. L'origine riferimento non è stata trovata.	• No branded materials for the specific event (e.g. clothing)

Aspects	Description
Branding and merchandising materials	• No gadgets from sponsors and clubs • No banner dedicated to the event • No fan products are delivered
Infrastructures	• Predominantly use of facilities already in place • Use by host clubs of gazebos and other materials that are then reused at other events
Water management	• Presence of drinking water stations
Energy management	N.A.
Food and beverages activities	• Vegetarian menu • Number of meals to be provided in advance to the catering service
Waste management	• Presence of separate waste collection in some areas
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 14: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels with environmental certifications)
Mobility	• Evaluate the location also through environmental criteria • Provide information to athletes and spectators on how to reach the event location by public transport.
Use of materials Errore. L'origine riferimento non è stata trovata.	• Evaluate the use of ecolabel detergents • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials) • Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of canoes and paddles
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	• Evaluate the installation of breakers (faucets aerators) at sinks
Energy management	• Evaluate installing photovoltaic panels on club facilities
Food and beverages activities	• Evaluate the use of compostable crockery

Aspects	Description
	• Evaluate the reduction of plastic bottles, both in the catering area and in the timekeepers' room
Waste management	• Evaluate to establish dialogue with AMSA in order to promote the spread of separate waste collection
Biodiversity and natural capital	• Evaluate to establish collaborations with the Metropolitan City of Milan to implement actions to adapt to climate change events such as droughts • Evaluate collaborations with universities and the Metropolitan City of Milan to find solutions to eliminate invasive algae while respecting and protecting the park's ecosystem.

B. Environmental audit on Internationale Sprint Race (Discipline Canoe Slalom) Ivrea 27 April 2023

1.1. Participants

Auditors: Anna Merlini (Federazione Italiana Canoa Kayak)

National Federation Representative: Ilaria Spagnuolo, Matteo Cerrano

1.2. Context – Ivrea Canoe Stadium

This report describes the environmental management practices implemented at the National and International Slalom and Kayak cross Canoe Race event held on 29-30 April and 1May 2023 at Ivrea canoe stadium, Italy.

Ivrea is a town in the metropolitan city of Turin characterised by an avant-garde history as a result of Olivetti's presence, a company that rejuvenated both its urban and social layout, ensuring technological development and great prosperity, it is a place of great inspiration, it is a UNESCO World Heritage Site.

Canoe & Kayak slalom events are timed events where competitors navigate a whitewater course by passing through a combination of upstream and downstream gates. Each course is different but can be a maximum of 300 metres in length and contain a maximum of 25 gates, with a minimum of six upstream gates. The type of gate is designated by colour, red for upstream and green for downstream. Courses are designed so the leading athletes will complete them in a time of between 90 and 110 seconds, though time penalties can be incurred for touching a gate (two seconds) and missing a gate (50 seconds).

Kayak cross is a combination of all canoeing's white-water disciplines, with competitors racing in identical plastic creek boats. The excitement begins from the very start, with four competitors sliding off a ramp more than two metres above the water and splashing onto the course as one. From there it's a race to the first buoy, and it really is a case of anything goes as each paddler tries to steal an advantage over their opponents. Athletes need to negotiate both downstream and upstream buoys, and contact is allowed – adding to the thrills and spills and excitement for spectators and athletes alike. Then there's the compulsory kayak roll. Athletes only have a short window of opportunity to successfully roll their kayaks, and they need to do a complete 360-degree flip. There are a variety of ways to get penalized – breaking the start, missing a buoy,

dangerous paddling, and failing to complete the kayak roll within the allocated area. Most races are over in around a minute, but times are not important. Kayak cross is very much a race of tactics, and often it does not pay to lead early.

The races are organised by the Organising committee consisting of the Italian Canoe and Kayak Federation (FICK) and the Ivrea Canoa Club that manages the area where the slalom canoe stadium is located in agreement with the municipality of Ivrea. Ivrea Canoe club directly manages the venue area through a direct assignment from Municipality of Ivrea: Ivrea Canoe Club doesn't pay fee for the area but has to pay all the utilities and to provide the building's and channel's maintenance.

The event takes place in the city centre of Ivrea at the Ivrea Canoe Stadium: river sports centre located on the right orographic side of the Dora Baltea river.

The canoe stadium consists of a channel with flow between 8 and 12 m^3/s, regulated by the hydroelectric power plant of Ivrea, it has a slope of 3.7%. The stadium stands in the central area of the town.

The venue is located 100m from regional train station, 118 km from Malpensa airport and 113 km from Milan city centre and 50 km from Torino city centre.

It is possible to reach the venue by car, bus and bicycle, a parking area and camper area are close to the venue. Information on how to reach the venue are available on website of Ivrea Canoa Club.

Figure 1: Ivrea geolocation

The event was attended by 17 clubs, including six national teams (Italy, Suisse, France, Great Britain, Kosovo, Senegal) and 109 athletes. 10 referees and are also present.

Figure 2: Canoa stadium and hydroelectric power plant geolocation

The venue covers an area of 2 hectares where athlets and spectators share the same areas.The venue is carachterized by control room, podium area, food and drink area.

Main entrance to the venue is from public park close to podium area.

Figure 2: venue area. E=entrance, A= ambulance area, P= Parking area, CP= Camper area, CR=control room, FD= food and drink area, R= river

1.3. Environmental aspect

Accommodation for staff and athletes

The staff and athletes stayed at Gardenia Hotel, Youth Hotel, La Villa Hotel, which are located close to the Canoe Stadium.

Figure 4: distance by car of Gardenia Hotel from the venue

Figure 5: distance by car of La Villa Hotel from the venue

Figure 6: distance by car of Hostel from the venue

They can reach the park by their own vehicles, such as cars or minibuses, or also by foot.

The hotels were not audited. However, the following best practices are worth mentioning:

- The three hotels are located close to the canoe stadium but only one, the Hostel, is a few minute walk away. The other hotels require at least a 40-minute walk.
- The Gardenia Hotel provides minibus to reach airport.
- La Villa Hotel provides bicycles, transfert for the airport and local food in its restaurant.

No environmental criteria are required by the Organising Committee and the only green criteria applied directly by the clubs for the selection of accommodation is the proximity to the venue.

Mobility

Regarding the mobility of the staff and athletes of the 17 clubs registered for the event, it should be noted that they travelled mainly by car or minibus. A total of 20 vehicles were used by the 109 athletes to reach the event. The 10 referees are not selected on a regional basis and travel independently of the clubs. All car or minibus are located in the parking are close to the venue. Parallel to the race channel there is a cycle and pedestrian track.

Use of materials

The equipment used by athletes in the international slalom canoe competition consists of the canoe, paddle, helmet, life jacket and splashguard. The slalom canoe is made of carbon fibre and painted. The racing paddles are single or double, also made of carbon fibre. The canoes do not require any treatment before the race or after the race. If necessary, they can be cleaned with water and limescale remover after the race, although this treatment mainly concerns canoes that have been in brackish water.

In general, the average life of a canoe depends on the type of discipline: slalom canoes have an average life of few year.

Figure 7: slalom canoe

Figure 8: detail of slalom canoe and paddle

Figure 9: splahguard, helmet and life jacket

Boats at the end of their life can be recycled or disposed of; boat management is the responsibility of the individual clubs. Damaged boats are usually repaired when there is a following of young people to whom they are given to start the sport. Resin and carbon fibres are used for repair.

Regarding the use of chemicals, as we have seen, water and limescale remover are sufficient for cleaning boats. Regarding the choice of chemicals for the changing rooms and toilets, no environmentally certified products are chosen.

No fuel is consumed during the competition for rescue team that consist in 2 rescue canoe in the river and six rescuers ready to rescue.

Branding and merchandising materials.

Regarding branding and merchandising materials, there are plastic banner and one forex-plastic totem of main sponsor along the channel and in the park area. The specific banners for the race are not reused, banners with FICK logos are used several time during the years also for a other venues, 10-15 times per years.

One gazebo with gadgets and merchandising of Ivrea Canoa Club is located at the entrance of the area, no free gadget are distributed to the fans and spectators or athletes.

The FICK provides athletes annually with a new clothing kit with the logo of the official sponsor Kappa, without this being adapted to the competitions.

Figure 10: plastic sponsor banner

Figure 11: forex totem sponsor banner

Infrastructures

The infrastructures are divided into fixed and mobile.

The fixed infrastructures are: control room, canoe storage building, gym and locker room with showers and toilette, two crossing bridges, the starting ramp (for kayak cross), fixed poles and steel cables for positioning of the race gates, steal stairs located in river to help athletes lifting river current and beside the canal bank and a sluice for the regulation of water capacity.

Mobile infrastructures are: podium, five referees gazebo along the race channel, gazebo of clubs

Fixed infrastructures

The control room is part of Ivrea Canoa Club building, it is also the accreditation's athletes room and where are based speaker of web streaming. There is one printer and five lcd screen, bags for accreditation of clubs are in organic material.

Figure 12: control room

Figure 13: accreditation's athletes

The local bar is a private commercial activity built with recycled wood.

Figure14: local bar

Two steel bridges are located crossing the river and used by referees as control point.

Figure 15: steel crossing bridge

Figure 16: steel and wood crossing bridge

The race channel is delimited by rock blocks and concrete that divided the natural river from the race area, along the artificiale embankment are fixed **22 steel poles** that are used to support **steel cables** holding mobile race gate.

Figure 17: artificial rocks and concreate channel embankment

Figure18: detail of fixed steel pole and cables

Two stairs are fixed in the river, the first one is used to access the river from the top of the enbankment river, the second one is driectly located in the river and is used by athelets to lift the river current with their canoe during the training sections in order to avoid to get off the canoe.

Figure 19 : steel stair to access the river

Figure 20 : steel stair for the athletes

The river flow is regulated by three different opening; the first one is along the natural embankment where wooden planks allow water to enter the race area, the second one, similar to the previous one, is the point where athletes start the race.

A third one is at the beginning of race field and represent a sort of small dam that regulate the constant water flow of 10m^3/s: The flow is controlled by hydroelectric power plant located south of field race, ten minutes walking from the venue.

Figure 21: opening in embankment river

Figure 22: start point

Figure 23: regulation of water

A small space for canoe recovery and gym with toilette and showers are also available for athletes and managed directly by Ivrea Canoa Club.

Figure 24: recovery of canoe

Figure 25: Ivrea canoa club gym

Mobile infrastructures are: podium, five referees gazebo along the race channel, gazebo of clubs.

Gazebos of participating clubs are dislocated along the area and serve as dressing rooms for athletes, sometimes chairs and tables are located outside the gazebos.

Six gazebos are located also close to the river and serve as check point for referees.

One gazebo of Ivrea Canoa Club is located close to the bar where sport equipment, gadgets and clothing are sold.

Podium area is setup in the public park close to the river and consists of three steel and forex blocks and mobile location for flag.

Figure 26: detail of referee's gazebo

Figure 27: gazebo along race area

Figure 28: Gazebo of clubs

Figure 29: podium area

Water management

With regard to water management, there isn't a particular strategy only one drinking water fountain in the public park is present.

Figure 30: Drinking water fountains

Figure 31: public park

Energy management

Since the events take place during the day and are cancelled in case of heavy, there is no significant energy consumption in the event areas: the lighting is off for the whole duration of the event. The permanent facilities are owned by the Ivrea Canoa Club, which is responsible for the management of the energy resource.

The energy supplier of Ivrea Canoa Club is a local company (AEG Cooperativa) that produce energy from renewables and even if doesn't have a specific certification such as ISO or similar, has a dedicated section on sustainability and an ethical code published in its web page. AEG company has a public strategy plan (available online AEG-Piano-Industriale.pdf)(aegcoop.it) for the period 2020-2024.

In the strategy plan AEG declares two strategic objectives and nine operative objectives:

strategic objectives

1) Focus on sustainability, promoting green energy and circular economy.

2) Improving networking, sharing solution and good practice.

Operative objectives

1. Positive Social Impact
2. Decarbonization
3. Reducing Energy Request
4. Building Renewing
5. 5 Promote Short Energy Production Chain
6. Education And Awareness
7. Circular Economy
8. Energy Efficiency
9. Sharing Economy

Food and beverages activities

The local bar for spectators is managed privately, doesn't have any certification or particular procedure for the management of food and beverage. No waste sorting is applied.

Food and beverages for athelets, volountiers and referees is managed by volountiers of Ivrea canoa Club. The club doesn't have specific certification but has an eco-friendly approach: no mono-use plastic material are emploied for the lunch with the exception of water cups that after their use are collected separately as mono material waste, water is served in reusable plastic jug, ceramic plate and iron cuttlery are used. Organic waste is separated from the other waste, which is collected separately Menù options vary on a daily basis, and mainy consists of pasta, vegetables, eggs. No meat is served in the menu, only ham is provided for sandwiches.

Figure 32: food and beverage

Waste management

Waste produced during the race are collected by Ivrea Canoa Club that follows the local municipal for the waste sorting and management; in the public park there are waste bins without separation of waste. Food organic wastes are collected in organic bags.

Biodiversity and natural capital

The event takes place in delimited area of Dora Baltea River in the centre of the town. The area is limited by "il Pontetto" an historical construction made of rocks that were used to convey water towards the Naviglio of Ivrea. The Ivrea Naviglio is an ancient artificial channel build in 1468 by Jolanda di Savoia in order to connect Ivrea to Vercelli. The Pontetto separates the river in two parts: on the left side the water is calm and goes towards Ivrea Naviglio, on the right side the river proceeds its natural course with different falls. During the time this part of the river has been modify in order to give the right condition of safety for kayak as it is possible to observe now. The channel has been modify several time during the years positioning inside the river big natural rocks or artificial cocreate block in order to create waves and modify current and slope of the river.

Presence of Canoe Stadium doesn't interact with local wild vegetation and fauna, several birds that have their nests at the end of race area in close proximity to small sandy areas.

During the event, the sound impact is mainly attributable to the speaker and music.

In 2022 the venue has been completed flooded by the river due to the heavy rains.

Figure 33: Finish area of race channel

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the Internationale Slalom Race provided a total of 13 implemented best practices and 10 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 15: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location

Aspects	Description
Mobility	• Presence of pedestrian paths • The Ivrea Canoe Stadium can be reached by train and is close to train station
Use of materials Errore. L'origine riferimento non è stata trovata.	• No branded materials are reused for other specific events (e.g. clothing)
Branding and merchandising materials	• No free gadgets for sponsors and clubs • No fan products are delivered
Infrastructures	• Predominantly use of facilities already in place • Use by host clubs of gazebos and other materials that are then reused at other events
Water management	N.A
Energy management	• Use of local eco-friendly energy supplier company • Purchase of energy from renewable sources
Food and beverages activities	• Vegetarian menu • Use of reusable plates and forks
Waste management	• Presence of separate waste collection in some areas
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 16: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels with environmental certifications) • Exchanging information on green certified accommodation near the venue with the clubs
Mobility	• Evaluate the location also through environmental criteria • Provide information to athletes and spectators on how to reach the event location by public transport.
Use of materials Errore. L'origine riferimento non è stata trovata.	• Evaluate the use of ecolabel detergents • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials) • Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of canoes and paddles
Branding and merchandising materials	N.A.

Aspects	Description
Infrastructures	N.A.
Water management	• Evaluate the presence of water stations
Energy management	N.A.
Food and beverages activities	• Evaluate the use of compostable cups in food and beverage area
Waste management	• Evaluate establishing relations with the municipality to encourage the dissemination of separate waste collection even within the public park, at least during competitions
Biodiversity and natural capital	N.A.

C. Environmental audit on Youth National Final (Discipline Canoe Sprint) Caldonazzo 9-11 September 2023

1.1. Participants

Auditors: Anna Merlini (Federazione Italiana Canoa Kayak (FICK) - Scuola Superiore Sant'Anna di Pisa (SSSA))

National Federation Representative: Ilaria Spagnuolo (Federazione Italiana Canoa Kayak - FICK)

1.2. Context – Caldonazzo town

This report describes the environmental management practices implemented during the Youth National Final held from 9 to 10 of September 2023 in Caldonazzo, Italy.
Caldonazzo is located in Valsugana, in the northern Italy, 20 kilometres from Trento, in the heart of Trentino.

The event takes place in Caldonazzo Lake, from which river Brenta originates; it is the largest lake entirely belonging to Trentino and historically a destination for water sports tourists. It is located next to the town of the same name, which has 3,000 inhabitants and stands at about 560 meters of altitude.

The races are organised by the Organising Committee consisting of the Italian Canoe and Kayak Federation (FICK) and Caldonazzo Canoa Club located in Lido di Caldonazzo Resort, which manages the area where competition takes place.

The event is divided in two parts, the agonistic competitions and the amatorial races. The first part of the event was focused on 200 and 2000 m races; the amatorial race took place on the “Ability Triangle”, a circuit with buoy involving students of “Adotta una Scuola 2023” project promote by Italian Canoe Federation.

The venue is characterized by a main building hosting hotel, bar and restaurant and an equipped beach available for tourists from April to October.

Close to the hotel are the locker rooms, a storage area for the Caldonazzo Canoe Club's sports equipment, a podium area, a car park and an equipped stage.

The venue is located 1,3 km from train station (18 minute's walk), 25 km from A22 motorway and 100 km from Verona Airport.

Figure 3: Caldonazzo geolocation

It is possible to reach the venue by car, bus and bicycle. Information on how to reach the venue is available on website of Lido di Caldonazzo resort. The event was attended by 86 clubs 1051 athletes, 10 referees, 160 trainers ad team leaders, supported by a staff team of 40 people. Estimated spectator have been 3200 over three days.

.

Figure 4: regatta field: red long distance (2000 m), yellow short distance (200m) green for ability triangle (amatorial competition)

Figure 5: Venue area: EA: events area (opening and closing ceremony), P: parking area, E: entrance, T: areas reserved for teams; H: restaurant, bar and hotel, C: control room, R: referees area

The venue covers an area of 2 hectares, where athlets and spectators share the same areas.

1.3. Environmental aspects

Accommodation for staff and athletes

Staff and athletes stayed mainly in the towns of Caldonazzo and Levico Terme, in different types of accommodation. The distance between the venue and the accommodations ranges from few meters (walking distance) to several kilometres.

The FICK staff and referees stayed mainly at the Hotel Lido di Caldonazzo, athletes and generic staff (team leader and trainer) chose different locations (camping, Hotels and private houses).

Through an online survey, clubs and staff were asked to indicate whether, in their selected accommodations, there was evidence of good practices in relation to environmental actions. As reported in table 1 every accommodation has separate waste collection, while other good environmental practises are related to the presence of minimarket selling local products and bicycle rental.

Table 17: Evidence of good environmental practises

TYPE OF ACCOMODATION	DISTANCE FROM THE VENUE	EVIDENCE OF GOOD ENVIRONMENTAL PRACTICES	EVIDENCE OF GOOD ENVIRONMENTAL PRACTICES ON THE WEBSITE
Camping al Pescatore	750 m	Separate waste collection	Not reported

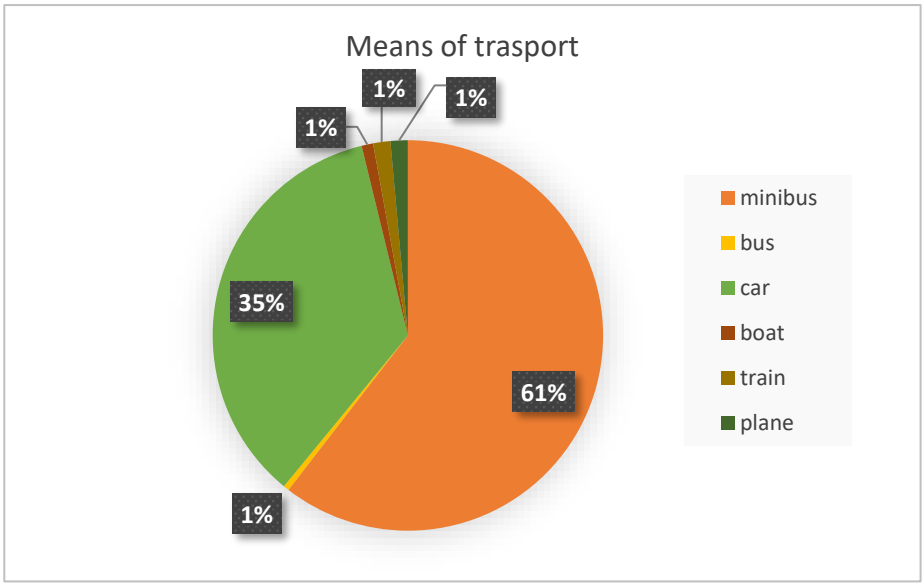
Camping Punta Lago	750 m	Separate waste collection	Bike rent
Camping Belvedere	400 m	Separate waste collection	Not reported
Camping Levico	3,7 km	Sell of local food in the minimarket inside the camping	Presence of "Biomarket" with local products
Hotel Cimone	1,4 km	Separate waste collection	Not reported
Camping San Cristoforo	6,4 km	Separate waste collection	Bike rent
Camping Fleiola	2,5 km	Separate waste collection	Not reported
Hotel Ariston	4,6 km	Separate waste collection	Not reported
Hotel Alla Torre	2,0 km	Separate waste collection	Not reported
Albergo due Spade	1,8 km	Separate waste collection	Not reported
Hotel Liberty	4,6	Separate waste collection	Not reported
Hotel Meridiana	6,5 km	Separate waste collection	Not reported
Hotel Aurora	12, 3 km	Separate waste collection	Not reported
Hotel Valcanover	5 km	Separate waste collection	Not reported
Hotel Turismo	8,8 km	Separate waste collection	Not reported
Camping Penisola Verde	1,8 km	Separate waste collection	Not reported

No environmental criteria for selecting accommodation are required by the Organising Committee; the only green criteria applied directly by the clubs for the selection of accommodation is the proximity to the venue.

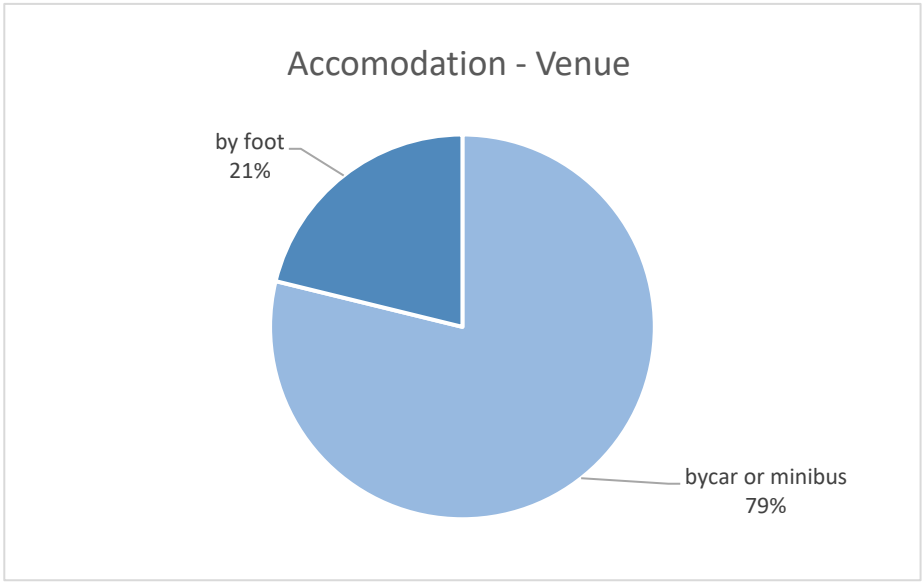
Mobility

Regarding mobility, athletes and staff reached the competition venue mainly by minibus and car; the plane, train and ship were used by a small percentage of athletes/staff (Chart 1 and 2).

During the race days the distance between the venue and the accommodations has been covered mainly by minibus or car. Close to the venue are present a large parking area and a cycle and pedestrian track.



Graphic 1: Means of transport used by clubs



Graphic 2: Club transport arrangements from accommodation to venue

Use of materials

The equipment used during the race event is different between competitive and non-competitive races.

The equipment used by athletes in the national competitive race consist of canoe, paddle and life jaket. Race canoe and paddle are made of carbon fibres, types of boat that have been used during the event are listed in table 2.

Table 18: Type of caone

K1	K2	K4	C1	C2	C4
singole	2 persons	4 persons	single	2 persons	4 persons

For non-competitive race the equipment consist of plastic boat (2 places), two Stand Up Paddle (SUP – 12 places) made of pvc and two Dragon Boat made wood and carbon fibres (20 places), paddle made of steel and plastic, lifejacket and helmet. Each participant also wears a polyester competition bib that will be reused in other competitions.

The canoes do not require any treatment before or after the race. If necessary, they can be cleaned with water and limescale remover after the race, although this treatment mainly concerns canoes that have been in brackish water. Sprint canoe have very long lifetime and one single boat can be used also for several years and repaired during the time.

Figure 6: k1 boats at starting line of 2000m

Figure 7: k4 boats

Figure 8: k1 boat with carbon paddle

Figure 9: C2 boat

Figure 10: life jackets

Figure 11: double seat on top boat with plastic and aluminium paddle. Paddlers wear helmet and racing bib.

Regarding the use of chemicals, as we have seen, water and limescale remover are sufficient for cleaning boats. Regarding the choice of chemicals for the locker rooms and toilets, no environmentally certified products are chosen.

Fuel is consumed during the competition for rescue team that consist in 4 rescue boat located around the race field.

Branding and merchandising materials.

1 TNT banner (20 m x 3 m), 5 TNT banners (1.50 m x 0.5 m), 4 plastic banners (1.50 m x 0.5 m), 1 polyester banner, 3 roll up banners are placed in the venue area.

All banners will be reused for other national competitions (10-15 times per year).

No free gadgets were distributed during the event, with the exception of metal bottles related to the DECK project.

Figure 12: podium area

Figure 13: PVC banner and roll-up

Figure 14: TNT banner (20m x 3 m)

Infrastructures

The infrastructures are divided into fixed and mobile.

The fixed infrastructures are: control room, bar and restaurant, one fixed gazebo in front of bar, stage for opening ceremony, canoe storage area, changing room with toilette.

Mobile infrastructures are: podium, one gazebo for the referees at start line, gazebo of clubs**.**

Fixed infrastructures

The control room is part of the Lido di Caldonazzo resort usually used as an open-air bar during the summer. It consists of wood and plexiglass building measuring 10mX10m. It is also the accreditation's athletes room and where is based the speaker. There is a printer and four pcs for managing the start lists, results and the photofinish device.

Figure 15: control room

Fixed gazebo is as permanent structure made of steel and pvc used as outdoor area in front of the bar. Under the gazebo are located 10 wood table with benches. The Gazebo is branded with Trentino Region logo.

Figure 16: Fixed gazebo

Bar and Restaurant are part of the Lido di Caldonazzo resort. During the event Bar is open from 7.30 am to 20.00pm and restaurant is completely reserved for athletes and staff. A full equipped kitchen is present in the restaurant.

Figure 17: bar

Figure 18: restaurant in front of the beach

Figure 19: reasturant kitchen

The ceremony area is a public infrastructure in the park located behind the venue.

The area consists of a covered wood stage with audio-video equipment. The infrastructure is made of concrete and wood. Electricity consumption is paid by municipality.

Figure 20: Public area for opening and closing ceremony

Figure 21: stage of the area

The changing rooms with toilets are located behind the restaurant area and consist of 2 prefabricated boxes, the **canoe storage area** consists of a wooden and steel shed, and the other toilets are located in the bar and restaurant area.

Figure 22: locker room and canoe storing area

Mobile infrastructures

Podium is a mobile structure made of three aluminium blocks; other mobile structures are basically the clubs **gazebos** and the referees gazebo at start line. All gazebos are made of steel structure covered by cloth.

Figure 23: referees gazebo at start/finish line

Figure 24: gazebos of clubs

Water management

With regard to water management, there isn't a particular strategy, however 2 drinking water fountains are present. One of these has been used to set up the "DECK Erasmus project " corner in order to increase the awareness on the use of plastic bottles and environmental topics.

Figure 25: DECK project corner with drinking water

Energy management

The event takes place outdoor, during the day with very low energy consumption. Energy consumptions are mainly related to bar and restaurant activity. In table 3 are synthesised all related consumptions (energy, water, gas, fuel)

Table 19: consumptions (energy, water, gas, fuel)

Type of consumption	Related processes	quantity	Source
Elettricity (kWh)	bar Kitchen, cronometers	1164 (kWh)	mix of renewable energy (local company)
Water (m3)	Toilette, bar Kitchen, fountains	70 (m3)	local
Fuel (l)	Rescue boat, set up of field race	125 (l)	local
Natural gas (m3)	Hot water, Kitchen	126,01 (m3)	

The energy supplier is a local company (Dolomiti Energia) that produce energy from renewables source. The company has a specific certification called "Warranty of Origin", an electronic warranty that guarantee the renewable origin of source in conformity with European legislation 2009/28/CE.

The company support also two projects for the customers: one related to renewable energy and another related to CO2 compensation.

Food and beverages activities

Bar and restaurant are managed without any particular certification in relation to food and beverage storage, however, the entire supply chain is related to local producers.

Food and beverages for athelets, volounteers and referees are managed by volounteers of the Caldonazzo Canoa Club. The club doesn't have specific certification but has an eco-friendly approach: no single-use plastic are used for lunch, except for water bottles that after their use are collected separately as single-material waste, no dishes are used, but only one paper tray and biocompatible cuttlery. Organic waste is separated from the other waste, which is collected separately. Menù options vary on a daily basis, and mainly consists of pasta, vegetables, eggs and meet.

Figure 26: served lunch

Figure 27: lunch and dinner menu'

Waste management

Waste produced during the three days of competition has been managed following the local municipal rules. The waste sorting allows to separate the following materials: paper, plastic and metal, glass, organic. In the venue are present bins with different colours and instruction in three different languages (Italian, English and German).

Figure 28: waste sorting collection

Biodiversity and natural capital

Lake Caldonazzo has been awarded the Blue Flag by the FEE (Foundation for Environmental Education, active in 41 countries worldwide). This is an important recognition that rewards seaside and lake resorts for promoting sustainable tourism.

The European Blue Flag award applies very well with the philosophy of the destination aimed at the sustainable development of an already highly natural area; destination that, first in the world, obtained in 2019 the certification for sustainable tourism according to GSTC criteria.

The canoe event doesn't interact with local wild vegetation and fauna, also the sound impact is mainly attributable to the speaker and music.

To offset CO2 emissions, FICK decided to join one of the Tredoom platform projects by creating the 'FICK Forest'. Each school that participated in the 'paddle race' received a personal certificate with a link to follow the assigned tree.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results

of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The DECK environmental audit of the Youth National Final provided a total of 14 implemented best practices and 7 recommendations.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 20: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Accommodation selection based on criteria of proximity to the competition location
Mobility	• Presence of pedestrian paths • The venue can be reached by train
Use of materials Errore. L'origine riferimento non è stata trovata.	• Banner are reused for other specific events
Branding and merchandising materials	• No free gadgets for sponsors and clubs • No fan products are delivered
Infrastructures	• Predominantly use of facilities already in place • Use by host clubs of gazebos and other materials that are then reused at other events
Water management	• Presence of dinking free water • Activities to raise awareness on the use of plastic bottles and environmental issues
Energy management	• Use of local eco-friendly energy supplier company • Purchase of energy from renewable sources
Food and beverages activities	• Use of reusable plates and forks
Waste management	• Presence of separate waste collection
Biodiversity and natural capital	• 7.7 t of CO2 were offset through the action Forest FICK

Observations and recommendations

Table 21: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• Recommending the selection of accommodation on the basis of environmental criteria (e.g. hotels and camping with environmental certifications) • Exchanging information on green certified accommodation near the venue with the clubs

Aspects	Description
Mobility	• Provide information to athletes and spectators on how to reach the event location by public transport.
Use of materials Errore. L'origine riferimento non è stata trovata.	• Evaluate the use of ecolabel detergents • Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials)
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	• Promote use of reusable cap/or bottle
Energy management	• N.A.
Food and beverages activities	• N.A.
Waste management	• N.A.
Biodiversity and natural capital	• Evaluate the location also through environmental criteria

CANOE FEDERATION OF SLOVENIA (KZS)

A. Environmental audit DECK project on ICF Canoe-Kayak Slalom World Cup 2023 (Discipline Canoe Slalom) Tacen, Ljubljana - June 18th 2023

1.1. Participants

Auditors: Niccolò Maria Todaro (Scuola Superiore Sant'Anna)
National Federation Representative: Jakob Marusic (Kajakaška Zveza Slovenije)

1.2. Context

This report describes the environmental management practices implemented at the ICF Canoe Slalom World Cup 2023, held at Tacen Whitewater Centre (Kajak Kanu Klub Tacen) in Tacen, a suburb of Ljubljana, Slovenja from June 15th to 18th, 2023. The Tacen Whitewater Centre is located approximately eight kilometers northwest of the city center (Figure 1). The competition was organized by the International Canoe Federation (ICF), the Canoe Federation of Slovenja (KZS), and the Organising Committee SLOKA 2023 which includes members of Slovenian Ministry of Defense (assuring public security services), the municipality of Ljubljana and members of two main local canoe clubs of Ljubljana.

Figure 1 – Geolocation of the Tacen Whitewater Centre in Tacen, Ljubljana.

The event hosted competitions of three disciplines: kayak slalom (male and women), canoe slalom (male and women) and kayal cross (male and women). Besides the official world cup competitions, the event hosted additional invitational races, training sessions and demonstration runs, which took place from June 12th. So, the event at the venue – from opening to closure – accounted for a total of 10 days: from June 10th to 20th, 2023. The competition hosted a total of 181 athletes from 32 national federations, representing 5 continents (Table 1). In addition, 89 people among team staff and coaches took part in the event, accounting for a total of 270 accredited people from the participating national federations. Additionally, 27 international technical officials (ITOs) participated in the event, which includes judges, time-keepers and technical videos staff, and 200 volunteers from local clubs, who helped arrange the venue.

Continent	**Participating national federations**
Oceania	Australia, New Zealand
Europe	Austria, Belgium, Croatia, Czech Republic, France, Germany, Great Britain, Hungary, Ireland, Italy, Kosovo, Netherlands, Poland, Republic of North Macedonia, Romania, Slovakia, Slovenia, Sweden, Switzerland, Ukraine.
Africa	Comoros, Morocco, Senegal
America	Brazil, Canada, Chile, USA
Asia	Japan, Kazakhstan, People Republic of China

Table 1 – Participating national federations

In terms of spectators, around 500 tickets are sold per day. In addition, a similar number of free tickets (accreditation) is provided to guests. According to a representative of the national federation, during the whole competition, around 4,000 spectators attended the event. Spectators mainly come from Ljubljana and near towns: for instance, 200 people from Hrastnik – a town located near the Sava river – came to the event with two buses to support one of the best Slovenian kayakers. According to a

representative of the national federation, also foreign people attend the event, mainly from Italy, Austria and Slovakia: most probably, foreign spectators are tourists that are visiting Slovenia, and, during their vacation, they attend the event. On Friday morning, the event hosted a "School Day", inviting around 350 young students from local schools to visit the venue.

The Tacen Whitewater Centre is the major venue for canoe and kayak slalom competition in Slovenia. It was established in 1990. It is a semi-artificial venue as it utilizes the natural river bed of the Sava River, and it diverts water from the main course of the river (Figure 2). The course length is 200 metres. The engineered part of the course is only 170 meters long. To increase its length to 275 meters, the course is extended upstream into the lake behind the dam and downstream into the natural flow of the Sava river (Figure 2). The water flow accounts to 13 m3 per second.

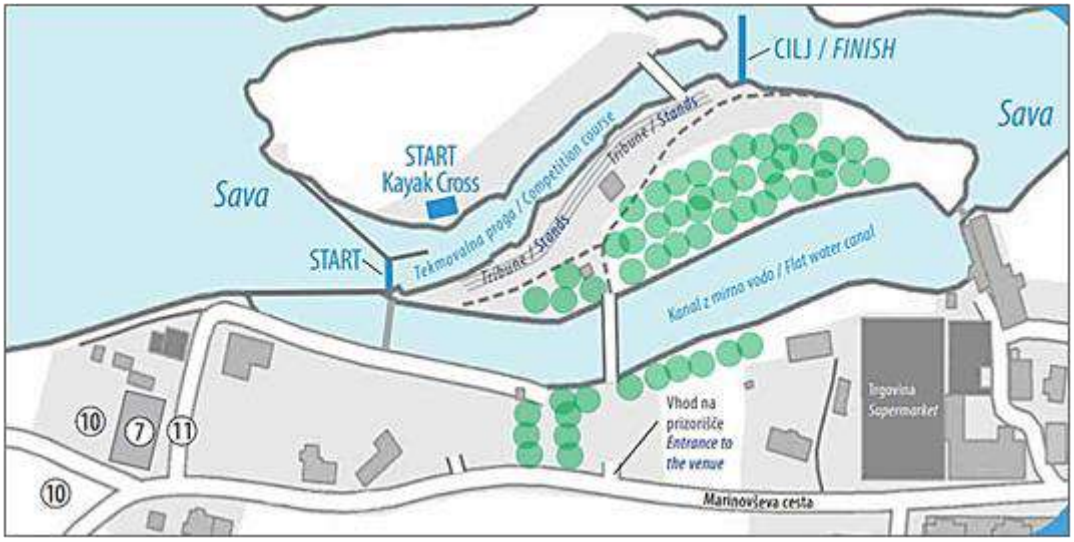


Figure 2 – The competition filed in Tacen Whitewater Centre.

In terms of ownership, the owner of the river bed is the Republic of Slovenia, while the river banks are owned by two hydropower companies. However, the federation is now discussing acquiring ownership of the river banks, as the venue is used around all year by the federation to host around 15 competitions (of different levels, from local teams to international cups) and training sessions. The federation does not pay a rent to the hydropower companies for using the venue. However, ownership of the venue would allow a more efficient use of the location. The federation pays a fixed tax for using the water.

During the night, the water flow in the competition field is stopped thanks to dam located between the lake and the river, so that hydropower companies can benefit from a higher flow of water. During the summer, when the water level is very low due to droughts, they had to postpone some competitions.

Besides the competition field, the venue is composed by a Teams Area for hosting athletes and national federations' staff, a Spectators Area including concrete benches along the competition field, parking areas, food stands and other services, a VIP area, a Press area and an Office Area for organizing committee's members (Figure 3).

Figure 3 - Tacen Whitewater Centre

1.3 Environmental aspects

Accomodation for staff and athletes

All athletes arrived on-site on Monday 12th to attend training sessions in the competition field. The federation does not provide recommendations for accommodations to teams, so they are not aware about the athletes' choices in terms of hotels.

The federation arranges the accommodation of ITOs in hotels sited close to the venue, and a bus shuttle is arranged every morning and evening to bring the officials, as well as some other staff, back and forth from the venue to the hotels.

Mobility

Being located at the outskirts of the city center, the most utilized mean of transport by supporters and staff was the private car. Accordingly, two parking areas were located in the proximity of the competition venue, one for spectators and supporters and VIP parking for staff and athletes (Figure 4).

Figure 4 – Parking areas

Besides private car, the venue could be easily reached with public transports: the Ljubljana City Transport has lines that have bus stops close to the venue. Specifically, to get to the venue from the city centre, spectators could take the line 8 (Monday – Saturday) and line (Sundays and Holidays only). In addition, as a best practice to incentivize the use of sustainable means of transport to attend the event, on the competition days (June 15th to 18th), the Ljubljana City Transport transfers on the lines towards Tacen were of charge with accreditation or tickets for the competition.

The venue can be easily reached by bike from the city center of Ljubljana, as bike lanes are present connecting the venue to the city center. To ease the use of bikes to reach the venue, some bike stalls were installed at the entrance of the venue. According to the interviewed event organizers, an expected high number of spectators reached the venue by bike, so additional stalls had to be installed during the event (Figure 5).

Figure 5 – bike stalls at the entrance of the venue.

As an additional best mobility practice, ICF staff was equipped with an electric car to travel from the hotel to the venue. A column for recharging the electric car was installed in the venue (Figure 6), and another one is available at the hotel where ICF members stay. Athletes teams travel with their own rented vans.

Figure 6 – Electric car used by ICF staff in the venue and recharging column.

Use of materials

Materials used during the event range from sport equipment to promotional materials. Sport equipment consists of canoes, paddles, helmets, life jackets and bids. The slalom canoe and racing paddles are made of carbon fiber (Figure 7). The boats are very personalized / customized, so it is very unusual that athletes change a canoe during a single season. According to the representative of the federation, the life span of canoe is one year for top paddlers (they usually get a new one for large international competitions), then they sell it to younger athletes in the club.

Figure 7 – Canoes sited in the athletes' area.

In the venue, plastic seats are provided to spectators in order to seat more comfortably on the concrete benches in the tribune area. The federation produced 1,000 plastic seats, 250 per sponsor. These are branded with the sponsors' logo. The seats are freely provided to guest in the VIP area (Figure 8), while they are sold for €2 to spectators. According to the representative of the national federation, asking spectators to pay for the seat is a strategy to avoid that a large number of seats are directly disposed on-site after use (the first time the federation used these seats, they were free and people threw them away on-site): still, the representative notices that the seats easily brake so small pieces of blue plastic can be found on the ground around the venue, and still some of these seats end up in the trash bins at the end of the race day.

Figure 8 – Plastic seats

Promotional materials such as paper brochures and leaflets are also distributed in the venue (Figure 9). This concerns the competition program, local canoe clubs, as well as promotional materials for touristic destinations in Slovenia.

Figure 9 – Paper brochures

In addition, all staff members and volunteers working on-site are provided with a branded t-shirt and a reusable bottle so they can use water from the fountains located in the venue.
Athletes are provided with bibs, which are often branded with sponsors' logo. Bibs are provided with a deposit. After the event, bibs are collected from athletes, and washed so they can be reused in future competitions.

Branding and merchandising materials

Branding materials are present in the venue. These mainly concerns PVC banners with ICF Canoe Slalom World Cup 2023 logo, as well as banners with sponsors' logos (Figure 10). These are located along the competition field, as well as fixed to railings by means of plastic ties to delimit the different areas of the venue. According to the interview with the representative of the national federation, plastic ties used to fix banners break very easily, and they are dispersed across the venue. In fact, a large amount of plastic ties can be found in the bins for plastic waste across the venue. Banners are provided by the sponsors and then collected back by the sponsors. Banners with sponsors' logo are reused in all the federations' events in the venue, as long as the sponsorship contracts are valid. To reduce the use of banners, the federation has installed LED banners.

Figure 10 – Sponsors' PVC banners.

A wide array of branded merchandising materials is distributed to guests during the event. These include t-shirts, polo t-shirts, sleeveless jackets, caps made of cotton and glass reusable bottles. All these merchandising materials have a printed ICF Canoe Slalom World Cup 2023 logo. In addition, merchandising materials from previous editions of the event are sold during the event on a dedicated sale point at the entrance of the venue: these includes t-shirts, polo shirts, reusable plastic bottles and sunglasses (Figure 11). The federation does not adopt environmental criteria in the selection of merchandising products as, according to the interview with national federation, more environmentally-friendly products would imply shorter useful life of products.

Besides merchandising materials, additional promotional materials made of paper, such as leaflets with the program of the competition and touristic brochures are distributed across the venue.

Figure 11 – Merchandising materials.

Infrastructures

The infrastructures in the venue can be distinguished between fixed, semi-fixed and temporary infrastructures. The main fixed infrastructure is the semi-artificial competition field, which consists of a concrete channel (river bed) underlying the Sava river. A dam regulates water flow from a lake sited at the beginning of the race course: paddlers indeed start the race in the lake and then drop in the concrete channel through a spillway passing through the dam. The race course then extends downstream into the natural flow of the Sava river. Hanging downstream or upstream gates are located along the race course, as well as artificial rocks meant to recreate the river rapids. The tribune area consists of concrete benches sited all along the race course, with trees providing shade (Figure 12). A further fixed infrastructure is the building used by the speakers and media personnel, as well timekeepers, which is located besides the race course, towards the arrival point: this building is provided with a wooden shed, providing shade for working personnel and technical equipment.

Figure 12 – Competition field, with a view on the dam and the concrete benches (tribune)

Semi-fixed infrastructures are containers, which serve different purposes, such as ticket and accreditation office, offices for the staff and media personnel, and equipment or merchandise storage. Each container is provided with electricity for lighting and other office equipment, such as printers, laptops, and in some cases refrigerators (Figure 13).

Three typologies of containers are present, which are differentiated based on colors. Green/brown containers are for office use, and are not permanent in the location even if they are on-site for the last four years. Blue containers are instead arranged for the duration of the event, and then removed at the end of the event.

Figure 13 – Info and ticket office containers at the entrance of the venue

In the media and staff areas, brown/green containers are allocated, which are used as office for staff or media personnel, or for storing materials. As an example, the machine for washing reusable cups utilized by the catering service is located in a brown container. In addition, a limited number of toilet container are also located in the spectators' area, which are provided with a septic tank (see section 10 for more details).

Figure 14 – Staff and media offices

Temporary infrastructures mainly consist of PVC gazebos and tents that are set up in different areas of the venue for different purposes. In the spectator area, temporary infrastructures are mostly gazebos where sponsors sell their products, such as canoes, paddles, sports vests, helmets and other sports equipment (Figure 15). In addition, in the spectators' area, a large inflatable pool is located, where children can play and paddle on small canoes.

Figure 15 – Sponsors' gazebos in the spectators' area

In the athletes' area, several PVC tents are at disposal for athletes' teams. These are used for storing sports equipment, and as dressing rooms, as well as "chill spots" with benches and seats during the event days (Figure 16). The tents are provided with electricity, and in some tents small refrigerators and video screens can be found.

Figure 16 – Teams' gazebos in athletes' area

Lastly, chemical toilets are temporary infrastructures located across all areas of the venue, from the spectators' area to the athletes' area (Figure 17).

Figure 17 – Chemical toilets

Water management

Five drinking water fountains are located across all areas of the venues; this considerably limits the use of single-use plastic water bottles. In addition, staff and guests are provided with branded reusable bottles. Besides water fountain, there are no other significant sources of water consumption in the venue, since there are not dressing rooms with showers, nor toilets with sinks. Water from drinking fountains is released in the ground.

Figure 18 – Drinking water fountains

Energy management

Energy consumption during the event is mostly associated with electricity: all electric appliances (e.g. LED screens, refrigerators, lighting etc.) utilized in the venue are connected to the municipal electrical grid, as diesel generators are not used. Diesel boats are not used during the event.

According to the interview with the representative of the national federation, the main energy consumption is attributable to LED screens: specifically, one large LED screens is utilized during the

competition to showcase highlights of the races and athletes' rankings; in addition, small rectangular LED screens are located along the race course to showcase sponsors' logos (Figure 19).

Figure 19 – LED screens along the race course

As the races take place during the day, lighting is not necessary during the competition. However, during the whole week, lighting is utilized at nights for security reasons. Additional activities associated with electricity consumption are the catering services (e.g., for what concerns the use of refrigerators), the use of media equipment (e.g. cameras etc.), and the PA audio system (Figure 20). According to the national federation, electricity consumption for whole event – from 10.6.2023 to 20.6.2023 – is 3,392 kW/h, which corresponds to lighting a football stadium for approximately 40 minutes of a world cup football match[1].

[1] https://selectra.co.uk/energy/news/world/world-cup-2018-stadium-energy-use

Figure 20 – Speaker and media workstation and PA system

Food and beverages activities

The catering service suppliers are selected by the organizing committee for the management of all food and drinks supply in the venue. The federation does not apply environmental criteria in the selection of catering service suppliers, but rather prefer to impose some specific requirements in the contract with the supplier: such as the exclusive use of branded reusable cups, ban on single-use plastic cutleries, the use of wooden cutleries etc.

Food and beverages are provided to audience and staff in three main areas of the venue: the spectator area, the VIP area and the press area. There is not a canteen for athletes, they provide for their own meals during event days.

In the spectator area, food and beverages are sold and served to the public in two kiosks, one serving soft drinks and draft beer, one serving meals (Figure 21). Both kiosks are equipped with refrigerators of different sizes, for food, drinks and packaged ice-cream.

The menu mainly consists of grilled meat that is prepared on site (e.g. cheeseburgers, hot dogs, pleskavica, sausages etc.), few vegetarian options are available, while no vegan options appear to be available on the menu. In addition to the two kiosks, a third small kiosk sells popcorns in paper containers and candies.

Figure 21 – Main kiosks for food and beverages in the spectator area.

As a good practice, reusable cups and compostable cutleries are used in the spectator area. In the beverages kiosks, beer is serve in branded reusable plastic cups, with the ICF Canoe Slalom World Cup 2023, Tacen Ljubljana logo. The federation produced 5,000 reusable cups for the whole event. A give-back system is implemented based on a €2 deposit associated with each cup. According to the interview with bar tenders, almost 100% of the cups are returned. The cups are washed in loco during the day, thanks to a rented washing machine located in a container in the staff area (Figure 22): according to the representative of the federation, the washing machine is very efficient as it uses less than 1 liter of water per washing cycle, which last 1 minute. The food kiosk is instead provided with paper plates and towels, and wood cutleries (knife and fork).

Figure 22 – Reusable cup and washingmachine

In the VIP area, a tend is set up as catering point for VIP guests (such as sponsors and local authorities), ICF members and other staff: in the tent, the caterers serve soft and hot drinks, draft beers and other alcoholics beverages such as wine, as well as finger foods and hot meals kept in chafing dishes (Figure 23). Desserts are also cooked on site. Also in the VIP area, cutleries and plates are made of compostable materials. According to the interview with the catering service, around 150 meals are served on each event day in the VIP area.

According to interview with manager of the catering service, food is sourced from local suppliers to ensure quality. In addition, organic food waste is collected and sold to local biomass producers.

Figure 23 – Catering in the VIP area

For the press and staff areas, a tent is set up with a small coffee station. Paper cups are provided: however, such cups contain a small plastic component in the lining and bottom to ensure that these are waterproof (around 5% of the overall cup) (Figure 24). As this small plastic component can constitute a contaminant, such paper cups are hardly recyclable by traditional paper mills. All catering areas across the venue are provided with bins for waste sorting (see section 10).

Figure 24 – Coffee station in press and staff areas.

Waste management

Waste is sorted during the event, and then collected by the municipal waste management company of Ljubljana, Vodovod Kanalizacija Snaga d.o.o . To this aim, a large number of bins for sorting waste are present across all areas of the venue, and each catering area is provided with an adequate number of bins for waste sorting. Three typologies of waste (each associated with a color) are sorted at the venue: (i) packaging, which includes plastic cutlery, plastic bottles and cups, plastic and aluminum foil, styrofoam packaging; (ii) residual waste (grey bin), which includes cork stoppers, ceramic and porcelain; (iii) organic waste (brown bin), which includes paper napkins, towels and tissues, used paper and wooden plates, biodegradable and wooden cutlery, vegetable and fruit waste, and food leftovers. In proximity of some bins, a sign (in both Slovenian and English) is posted to recommend the event's attendees to respect nature by properly sorting their waste (Figure 25).

Figure 25 – Bins for waste sorting andsignage

According to the interview with the representative of the national federation, the color coding is not very effective in aiding attendees to sort waste, as colors varies from country to country, so foreign spectators may get easily confused. Thus, waste sorting in the venue may benefit from a more detailed signage and instructions in proximity of the bins. The representative of the national federation also notes that broken plastic ties used to fix banners around the venue (Figure 26), as well as broken plastic seats, are common waste that can be found around the venue, and that may be easily avoided by a more cautious use of such items.

Figure 26 – Broken plastic ties and plastic seats in the bin.

After sorted collection at the venue, sorted waste is collected in containers in a dedicated area of the venue, where it collected on a daily basis by the municipal waste management company (Figure 27).

Figure 27 – Sorted waste containers

Wastewater from the toilette container located in the spectator area is collected in a septic plastic tank located under the toilet container, which provides for a small on-site sewage treatment system (Figure 28). The septic tank provides for separation between solid and liquid waste, and treatment of solid waste by means of enzymes and bacteria. Part of the treated, clear water is then filtrated by the soil, while remaining solid waste is collected by municipal waste management company.


Figure 28 – Septic plastic tank below the toilette container

Biodiversity and natural capital

The competition field is not located in the surrounding of a protected natural area. The event does not significantly interact with local fauna, flora and natural capital in general. Boats are produced in order to be safe for the environment, so that materials are not dispersed in the river, nor chemicals are applied on the canoes before entering the water. During the summer, some issues may arise due to low water level. However, due to the fact that the competition field is an open system (as opposed to a lake), similar issues are mitigated. The main disturbance to local fauna is associated with the use of a PA system with loudspeakers located in different areas of the venue, which are used to diffuse messages of the speaker as well as to stream music to entertain spectators. However, the loudspeakers volume is very moderate, so much so that it is not considered a risk to the local fauna.

1.4 Conclusions

DECK's objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions. Task 2.1 involves conducting on-site visits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues.

In this visit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The on-site visits of the ICF Canoe-Kayak Slalom World Cup 2023 at Tacen Whitewater Centre in Tacen, Ljubljana provided a total of 14 implemented good practices and 10 recommendations for improvement. The main best practices and recommendations are summarized in the following tables.

Best Practices

Table 22: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	• Hotels for ICF and ITO staff are selected based on proximity to the venue
Mobility	• Bus tickets are provided with the event ticket to incentivise the use of public transport to reach the venue from the city centre; • Bike racks installed at the entrance of venue ease the use sustainable mobility by spectators; • ICF staff is equipped with an electric car to travel from the hotel to the venue, a recharging column is located in the venue
Use of materials	• Plastic seats are provided with a deposit to reduce plastic waste on-site
Branding and merchandising materials	• Merchandising materials from previous editions of the cup (e.g. t-shirts, glasses etc.) are sold in the venue instead of being disposed
Infrastructures	N.A.
Water management	• Drinking water pipes are located across all areas of the venue • Staff and athletes are provided with reusable bottles in order to reduce the use of single use plastic bottles in the venue • Water-efficient washing machine
Energy management	N.A.
Food and beverages activities	• The use of single-use plastic cutleries in catering services is forbidden by the federation, in favour of compostable cutleries • Reusable cups with a “give back” system based on a €2 deposit are used, instead of single-use plastic glasses • Food is sourced locally and food waste is provided to biomass producers
Waste management	• The use of single-use plastic items on-site is strongly mitigated to avoid plastic waste; • Bins for sorted waste collection are located across all areas of the venue, and in proximity with all food kiosks and catering areas; • Signage is located in proximity with trash bins to motivate spectators to separate waste.

Aspects	Description
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 23: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	• A guideline for sustainable accommodation may be provided to teams to facilitate the choice of environmentally-friendly hotels by athletes, with recommendations on sustainable accommodation choices (based on criteria such as proximity to the venue, means of sustainable mobility connecting the venue to the hotel, eco-labels and certifications etc.)
Mobility	• Providing a guideline/recommendations to spectators on how to reach the venue by mean of sustainable mobility options, including public transports and bike lanes connecting the city centre to the venue • Increasing the number of bike racks in the venue
Use of materials	• Integrate environmental criteria in the selection of key suppliers or environmental requirements in contract agreements (e.g. cleaning services)
Branding and merchandising materials	• Evaluate the use of environmental criteria in the selection of merchandising (e.g. t-shirts made of recycled textile or organic cotton) and promotional materials (e.g. leaflets made from recycled or FSC-certified paper)
Infrastructures	N.A.
Water management	• Installing faucets aerators in the water pipes to reduce water consumption
Energy management	• Evaluate the use of hydroelectric power to supply electricity in the venue
Food and beverages activities	• Improving vegetarian and vegan options in the menu of the catering services
Waste management	• Improving signage in proximity of the trash bins, with more detailed instructions on how to properly sort waste
Biodiversity and natural capital	• During “School Days”, carry out awareness raising initiatives with students on environmental and natural capital protection

B. Environmental audit on Marathon Ljubljana (Discipline canoe Marathon) Ljubljana 21. October 2023

1.1. Participants

National Federation Representative: Andrej Jelenc, Jakob Marušič (Canoe Federation of Slovenia).

1.2. Context – Ljubljanica river - Ljubljana¸ Slovenia

This report describes the environmental management practices implemented at the Marathon racing event Ljubljanski marathon on Ljubljanica river in Ljubljana town. Race was held on 21.10.2023. The event was both competitive and non-competitive and open to everyone. It came 105 participants from Slovenia, Croatia and Hungary. Participants came in individual racing and kayak boats. The event was organized by the local Kajak kanu klub Ljubljana under cover of National Canoe Federation od Slovenian. Event is a part of 5 events held in 2023 on different Slovenian rivers to promote paddling and marathon racing on waters.

Figure 29: Ljubljanica river

The event took place in the city of Ljubljana, located in the middle of Slovenia approximately 150 km from Zagabria and Udine.

The event venue is located 3 km from city centre of Ljuiljana on Ljubljanica river at Kajak kanu klub Ljubljana, which is within walkable distance from Lubiana train station.

Figure 2: Geolocation of Ljubljana

Figure 3: Kayak Kanu Klub Ljubljana

The Event was a circular race with one turning point and start/finish line located at the same place on Ljubljanica river.

The majority of participant were local but 2 clubs came from Hungary and Croatia. All participant parked cars at the club parking place. Start and finish line were 50m from the parking place.

Figure 4: Location of start/finish line and parking place

1.3. Environmental aspects

Accommodation for staff and athletes

The competition was one day event and doesn't required accommodation for participant or staff the came from local area, with the exception of 2 clubs from Hungary and Croatia that have been hosted in the gym building of kayak club.

Mobility

All participants came with their own cars and vans to the Kajak kanu club Ljubljana using the parking area of the club.

Use of materials

The equipment used by participants consisted of: boats, paddle, life jackets only for athletes under 14 years old. All of participants were in single paddlers boat.

Boats are not made for single use but can be used for years.

Rescue boat was motorboat with benzin engine.

Branding and merchandising materials.

In terms of branding materials, there were 20 plastic banners with logos of sponsors and partners. All banners were fixed with plastic ties for 1 time use.

No other branding or merchandising materials were used.

Infrastructures

The event was organized using the permanent infrastructure on site. No other permanent infrastructure was put on for the event.

The mobile infrastructure were tables for multiuse, own by organising club, they are stored on site and used for all events organised by the club.

Sound system was put on with 1 speakers. It is owned by club and storage in club house.

Figure 5: Kayak Kanu Klub Ljubljana

Energy management

Since the events take place during the day and are cancelled in the event of strong intensity, there is no significant energy consumption in the competition areas.

Electric comes from public electric network and was at the hosting area for cooking, sound system and computers to ensure time measuring on the race.

Since club house is equipped with more electric pluges some of participants were charging their mobile phones there.

Food and beverages activities

In relation to food and beverage management, no catering was present to the event.
Water refilling station was present and the only served beverage was tea in reusable plastic glasses. 200 glasses were utilized and washed in a local bar at the end of the competition.

Waste management

The waste produced during the competition was collected according to the municipal regulations for waste collection and management. The most abundant waste consisted in plastic; minor paper and mixed waste were also collected.

Figure 6: Waste collection

There was not a lot of waste some plastic participant bring own food with them and leave packaging and most of waste were packaging plastic.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions.

Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 24: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	N.A.
Mobility	• Sharing information on the event webpage about the public transport (buses) available to reach Ljubljana start position.
Use of materials	• Banners are reused at other events • Reduced paper consumption for documents, information mostly uploaded online
Branding and merchandising materials	• No fan products are delivered
Infrastructures	• Prevalent use of existing structures • Existing temporary structures (e.g. stage, start and finish inflatables) are reused in other competitions
Water management	• Water refill system present
Food and beverages activities	• Use of reusable glasses and bottles
Waste management	• Presence of separate waste collection in all areas
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 25: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes ...	N.A.
Mobility	• Evaluate the location also through environmental criteria
Use of materials	• Evaluate collaborations with universities and companies for studies on the feasibility of recycling and recovery of canoes and paddles
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	N.A.
Energy management	N.A.
Food and beverages activities	N.A.
Waste management	• Evaluate establishing relations with the municipality to encourage the dissemination of separate waste collection even within the public park, at least during competitions

Aspects	Description
Biodiversity and natural capital	N.A.

C. Environmental audit on Regata Isontina (Discipline canoe recreation) Solkan Peuma 3 September 2023

1.1. Participants

National Federation Representative: Andrej Jelenc, Jakob Marušič (Canoe Federation of Slovenia).

1.2. Context – Soča river - Solkan¸ Slovenia

This report describes the environmental management practices implemented at the non competitive event Soška regatta Regata Isontina on Soča river between Solkan – SLO and Podgora IT of 6 km. Regata was held on 03.09.2023.

Around 250 participants took part to the event, coming from Slovenia and with any type of boats except motorboats.The event was organized by the local Kajak klub Soške elektrarne under cover of National Canoe Federation of Slovenia. Event was a part of 8 events in 2023 in different Slovenian rivers to promote paddling and recreations on waters.

Figure 30: Soča river during the event

The event took place on Soča river on West border of Slovenia. The venue is located 100 km from Liubiana and 50 km from Udine. Start Solkan Slovenia , finish line Peuma Italy.

Figure 31: venue geolocation

The kayak Club house for accreditation is located 3 minutes by car and16 minutes by walk from train station.

Figure 32: Distances from train station to Kayak Club House

The Event was held on three locations: the starting line was located in Solkan, near the powerplant and the finish line at the Sontina Park Gorizia, a post event location was at the Kajak klub house Solkan.

Figure 33: Location of starting and finishing line

All participant, after accreditation, left cars near starting point and organisers arranged transport for participants and boats from Finish line to the starting point.

At Kayak Club House all participants could get food and drink for free.

Figure 34: Canoa Kayak Club

1.3. Environmental aspect

Accommodation for staff and athletes

The event held only on one day and no accommodations were necessary for athletes or Staff

Mobility

Most of participants reached the venue with their own car transporting kayak or inflatable boats inside or on the car roof. Since the distance between start a finish was approximately of 6 km, all participants needed transportation service to reach the car after the competition. The organising committee arranged this service for all participants.

Use of materials

Participants used different types of boats:

- Single kayak made of plastic;
- Double kayak made of plastic;
- Inflatable Rating boat for 6-8 people made of rubber;
- Inflatable sup made of rubber.

All participants used also single or double paddle made of plastic and steal or full carbon, helmet made of plastic and lifejacket made of polyester.

All the equipment is projected for a long-time use.

Figure 35: single carbon kayak

Figure 7: Inflatable rating

Figure 8: plastic single kayak

Figure 9: Infletable SUP

During the event were present also rescue rafting boats guided by professional guides with licence for rescuing with same equipment (paddle; helmet, lifejacket).

Branding and merchandising materials.

In terms of branding materials, there were some plastic banners with logos of sponsors and partners. All banners were fixed with plastic tie for 1 time use and around 100 were used. Organiser ordered 300 cotton t-shirts printed with logos and name of event for all participants. Thay came in paper boxes (5 boxes) around 3kg of paper.

Infrastructures

Only permanent infrastructure were used on site. No permanent infrastructure was put on for the event. Tables were used for multiuse, own by organising club, they are stored on site and used for all events organised by the club. Sound system was put on by the organisers with 2 speakers.

Figure 10: Accreditation are

Energy management

Since the events take place during the day, there is no significant energy consumption in the competition areas.

Electricity comes from public electric network.

Electricity was used on start to inflate rubber boats. At the hosting area was used for coking and sound system.

Because club house is equipped with more electric pluges some of participants were charging their mobile phones there.

Food and beverages activities

There wos catering service at the fosting erea after finish. All participants got pasta and glas of drink. We served pasta in paper plates and with wooden forx for 1 time use. 400 Reusable plastic glases were used and washed after event. The glases came from Tace (105 km faraway) in 1 carton box and bring back in Tacen after the event. At the end of the event glasses wer wahed in local bar near the club house in Solkan.

Waste management

The waste produced during the competition in the 3 areas was collected according to the municipal regulations for waste collection and management.

- 1 location on the start of the event,
- 2 locations on the finish of the event,
- 3 locations club house in Solkan.

All waste were collected in club house and managed by local waste collection company.

- Location 1 there was less than 1 kg of waste together paper and plastic.
- Location 2 there were around 5 kg of plastic and no other waste.
- Location 3 there were more and different waste you can find in excel file exact quantities.

1.4. Conclusions

DECK's main objective is to promote the adoption of environmental management and circular economy practices by the sport's key players in order to improve sustainability during canoe and kayak competitions.

Task 2.1 involves conducting audits to assess the state of the art of environmental management at canoeing and kayaking events by examining the operational management of environmental aspects at major competition venues. In this audit, all environmental aspects that may have an impact on the environment during a canoeing and kayaking event were considered. The results of the audit can be described as a mapping of best practices already in place and the sharing of observations/recommendations consisting of indications of possible improvements proposed by the auditors.

The main best practices and recommendations identified are summarised in the following tables.

Best Practices

Table 26: Best Practices implemented

Aspects	Description
Accommodation for staff and athletes	N.A.
Mobility	• Sharing information on the event webpage about the public transport (buses) available to reach Solkan start position. • Organise transport from finish line to start line back.
Use of materials	• Banners are reused at other events • Reduced paper consumption for documents, information mostly uploaded online
Branding and merchandising materials	• No fan products are delivered
Infrastructures	• Prevalent use of existing structures • Existing temporary structures (e.g. stage, start and finish inflatables) are reused in other competitions
Water management	• Water refill system present
	N.A.
Food and beverages activities	• Use of reusable glasses and bottles
Waste management	• Presence of separate waste collection in all areas
Biodiversity and natural capital	N.A.

Observations and recommendations

Table 27: Observations and recommendations

Aspects	Description
Accommodation for staff and athletes	NA
Mobility	• Evaluate the location also through environmental criteria • Provide information to athletes and spectators on how to reach the event location by public transport.
Use of materials	• Evaluate suppliers also through environmental criteria (i.e. use of less hazardous and more ecological cleaning materials) • Evaluate t-shirt made of recycled materials.

Aspects	Description
Branding and merchandising materials	N.A.
Infrastructures	N.A.
Water management	N.A.
Energy management	N.A.
Food and beverages activities	• Evaluate the use of compostable cups in food and beverage area
Waste management	• Evaluate establishing relations with the municipality to encourage the dissemination of separate waste collection even within the public park, at least during competitions
Biodiversity and natural capital	N.A.

ANNEX B

Environmental Governance Interviews Reports (Task 2.2)

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CROATIAN CANOE FEDERATION (HKS)

1° Interview

National Federation	Croatian Canoe Federation
Topic	Mission, Strategy and Policy
Interviewee	Ivana Šundov
Position	Administrative Manager
Interviewer	Rachele Stranieri, Romina Puccetti (SSSA)
Date	13/02/2024

Content of the interview

- Ivana Šundov has been working with the Croatian Canoe Federation since 2020. She deals with administrative and organizational issues. A total of 4 people are employed in the Federation. In her job, she is supported by a colleague that deals with the financial issues.
- The Mission of the Federation is to develop the sports of kayak and canoe and to support their athletes. It is a publicly communicated mission. They have documents attesting this and the mission is also communicated externally through emails and the website.
- In general, their key contact methods are by email and phone.
- The Values of the Federation are fair play, the protection of kids and, more recently, the protection of the environment. They have included these values in their Statute. The environmental aspect was included in connection of the fact that the sport is taking places in rivers and lakes and thus in water.
- The last Statute of the Federation was drafted in 2015, but the Croatian law changed in sport so they amended the Statute last year in 2023.
- The top management was involved in the amendment of the Statute. Amendment suggestions are sent to the executive board and then to the Congress, who makes the final decision on the Statute.
- The reference point of the Federation is the Croatian Olympic Committee, so they are following the guidance of this Committee that involves and educate them on environmental issues. The Federation itself does not have a clear view or strategy connected to the environment yet, apart from being involved in the EU projects DECK and Green Kayak, in which they are trying to figure out how to implement this aspect. Through these project they have started to think about environmental management.
- The Federation does not have any strategy. A strategic document/plan could be helpful for the federation, which also includes environmental objectives.
- They do not have any policy for managing environmental issues. For sprint and slalom, they only have set the rules on how to organize the competitions, but these rules do not include any environmental aspect.

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- They had a plan to make an ethical policy and an environmental policy. She thinks that this would be helpful and that the Federation needs to start working on these aspects.
- There are no general rules for example on waste management, and it is not yet in the culture of the people to separate waste; moreover, waste management changes depending on the city, so it would be useful to have a general Guideline for the Teams on several environmental aspects, including, for instance, waste and mobility.

Inputs for governance initiatives

1. Drawing up an environmental policy.
2. Elaboration of a strategy with specific environmental goals and monitoring indicators.

2° Interview

National Federation	Croatian Canoe Federation
Topic	Operational management (sites, venues, sport centres, mobility, logistics)
Interviewee	Vedran Bozic
Position	Athlete, Coach and Secretary of the Canoe Kayak Club Olimpik
Interviewer	Rachele Stranieri, Romina Puccetti (SSSA)
Date	06/02/2024

Content of the interview

- Vedran Bozic is an athlete and coach and secretary of the Canoe Kayak Club "Olimpik".
- Has been in the Kayak sport for 22 years. He has been participating in the organization of National Federation competition and for 12 years and he has been coaching young athletes. Last year he helped in the organisation of the European championship, and he also participates as Athlete in Masters Marathon competitions. In addition, his full time job is in a private sport company.
- For many years he has been organising cups and competitions for children, so he knows how the organization is working in smaller competitions, but in European championship it requires much more work.
- The club has a club house/headquarter near the river; any sport and recreational activity of the city happens near the river. His role can influence the management of environmental aspects such as waste and water management. They have different bins for separate waste collection near their club house and in some other points. They also collect trash from the river if they find any. It is part of their everyday practices. However, they do not have a procedure/guideline on how to manage waste. Sometimes they have guidance to do this by the National Federation on competitions organised by the National Federation itself, however, there are a lot of competitions organised by the clubs and they implement this practice from their own perspective, without guidance.
- For the European championships they receive guidance from NF to put in place separate waste collection bins and where to put them.

- He said that it could be helpful to receive some procedures on how to put in place environmental practices and to monitor them by the NF, both in the form of guidelines and through specific seminars/ presentations.
- He also mentioned that they need more people and resources to organise the competitions; the club has very low funds. They need to increase the visibility of the events.
- From an environmental point of view, they need guidance from NF on environmental topics such as how to make a correct separate collection of waste through awareness raising and communication campaigns and include communication with the municipality to improve this kind of practices also in the competition venues in big cities, not only on the club house or smaller events. This would also help athletes to spread these good practices at home with their families and in the community as a whole.
- He thinks mobility is not a problem as it is usually well organised, they did not have problems with transportation during events.

Inputs for governance initiatives

1. Drawn up some environmental procedures/guidelines for clubs on how to manage environmental aspects and monitor them (e.g., waste, water, mobility, etc).
2. Evaluate the drafting of a procedure that facilitates the communication and cooperation with local authorities and NGOs for managing environmental aspects.

3° Interview

National Federation	Croatian Canoe Federation
Topic	Roles, responsibilities & training
Interviewee	Stjepan Perestegi
Position	Head coach of wild water canoeing
Interviewer	Rachele Stranieri, Romina Puccetti (SSSA)
Date	20/02/2024

Content of the interview

- He is head coach of the canoa discipline of wild water canoeing (there are different canoeing sport: sailing, flat water, wild water). His job is dedicated 90% to slalom, which is an Olympic discipline, and 10% to down river, which is another discipline not in the Olympics).
- Branco is the General Manager; there is no specific CSR/sustainability manager within the Federation. They have not appointed an environmental manager yet because the federation is small and they do not have enough human and financial resources.
- Stjepan makes his decisions alone for wild water canoeing at the beginning of the season; he is not only a professional coach but he also organizes the trips, accommodation, etc.

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- The Federation does not provide trainings on environmental sustainability topics to his employees, athletes and coaches, but he hopes in the future they will do that. They talk about it, but never officially.
- He did not know whether the NF has organised some training courses on how to repair boats, but he said that this may happen for flatwater teams and not for wild water canoeing. In wild water canoeing, for top athletes the boats last 6 months to 1 year, then they pass to juniors, then to new members (they last max 3 seasons), and he usually repair the boats when they get damaged.

Inputs for governance initiatives

1. Appointment of a sustainability officer/committee within the federation.
2. Development of an internal environmental training and awareness-raising plan for employees.
3. Design and implementation of an engagement and awareness plan including, for example, testimonials, challenges and educational activities on environmental issues for athletes and other stakeholders (coaches and club staff in general).

4° Interview

National Federation	Croatian Canoe Federation
Topic	Organisation of Games/Events
Interviewee	Stjepan Perestegi
Position	Head Coach of wildwater canoeing
Interviewer	Rachele Stranieri, Romina Puccetti (SSSA)
Date	20/02/2024

Content of the interview

- He said that there is a very limited number of places where it is possible to organize wild water canoeing competitions, for example in Croatia one of the places is a hydro station located 60-70 km from Zagreb; often competitions take place in natural places without electricity and energy. Usually they stay one day, if the competition lasts more they use tents. It is not possible to make food, so they get it delivered by restaurants in big boxes to the camp and every athlete brings its own tools for eating. In this way, they do not produce any garbage (during covid, however, restaurants used to give athletes food in individual plastics packages, with consequent production of waste). They bring water in big plastic tanks and that's the only garbage they produce.
- They do not apply green criteria in buying clothes because the equipment is very technical and specific, and there are very few good manufacturers selling this kind of equipment.
- When they organize wild water competitions in Croatia, they keep it simple and just bring a tent for shadow, a generator for electricity and some electronic equipment such as computers where they register the results. In international competitions, in

flatwater the organization committee cares about transport, food, accommodation, etc. In wild waters, he cares about these aspects. Regarding mobility, he tries to promote carsharing; he informs all clubs and families of the athletes to share the cars. The competitions usually do not have supporters, only some parents come to support with transporting the athletes.

- Competitions usually take place in natural areas, and sometimes in protected areas. They choose the competition areas based on the water level (if it is too low or too fast, it is not safe), therefore technical aspects for safety are always prioritized instead of environmental aspects.

Inputs for governance initiatives

1. Partnership with sponsor to improve environmental initiatives.
2. Drawing up an Environmental Action Plan for an event, with goals and actions to improve.
3. Drawing up a venue selection procedure that protects the biodiversity of the competition area.

HELLENIC CANOE-KAYAK FEDERATION (HCKF)

1° Interview

National Federation	Greek Federation
Topic	Policy and Mission
Interviewee	Georgia Griva
Position	Director
Interviewer	Nicolò Di Tullio, Daniele Casiddu
Date	06/02/2024

Content of the interview

- The mission of the Federation is to expand the sport of canoe & kayak around Greece and make the sport more popular even to people not involved in sport but just like it for fun. She does not know if the mission is stated on their website but it is surely included in their strategic plan. The mission is internally communicated to the federation's employees.
- They have a statement and it is linked to the Federation's strategy and mission.
- The mission encompasses all the organisational structure of the Federation, including the development department and the coaching schools.
- The mission was built by the Board of Directors without involving other departments within the Federation.
- The mission and strategic plan of the Federation do not include any aspects related to environmental sustainability. She hopes environmental values will be added in the future. This will enhance and improve the mission and purpose of the federation, while not changing it. They are going to revise their strategic plan at the end of the current

Board of Directors season (4-year period), at the end of this year 2024. She acknowledged the positive impact of the Federation's ongoing involvement in the Erasmus+ DECK project, saying that the DECK Project helped her value the importance of including environmental aspects into their mission and strategy.

- One of their plan is to implement and expand some projects, apart from the national championships, that can expand the sport (e.g. coaching schools). Another plan is to geographically distribute the competitions around Greece, to make the sport more popular across the whole national territory. Furthermore, the Federation plans to increase its communication with local authorities to develop sport programs and increase community involvement.
- She is in charge of managing, executing and reviewing these plans and objectives, together with some people directly involved with the different plans/projects.
- In terms of performance monitoring of the progress of its plans, the Federation predominantly focuses on quantitative metrics by tracking the number of competition, clubs and athletes that are getting involved.
- The Federation has not adopted any policies to manage environmental issues during operations. She would like to add some environmental or ethical aspects in the policies of the Federation; she mentioned that during Covid they introduced some policies that were also indirectly beneficial for the environment – e.g. using more digital files and less printing paper.
- Despite the National Federation currently lacks specific environmental policies, this interview suggests a future positive shift in this regard and openness to aligning operational practices with environmental considerations, as she expressed a willingness to integrate environmental sustainability into the operational framework of the Federation.

Inputs for governance initiatives

1. Drafting of the environmental policy.
2. Drafting of an environmental strategy/plan to enable monitoring and evaluation of environmental objectives and initiatives.

2° Interview

National Federation	Greek Federation
Topic	Roles, Responsibilities and Training
Interviewee	Georgia Griva
Position	Director
Interviewer	Nicolò Di Tullio, Daniele Casiddu
Date	06/02/2024

Content of the interview

- Georgia Griva is the Director of the Greek Federation, and as such she is involved with everything within the federation. In particular, she runs the decisions made by the

Board of Directors, she distributes projects to the different people and she is in charge of the communication with the clubs, the ministry of sport, etc. She has been in this position since 2018 and she is working in the federation since 1999, as an employee and a supervisor (a figure under the director).

- She has a university degree and a master's in business administration. After her studies she worked as an account officer for a few years, then she started working in the federation.
- 5 people are currently working in the federation, moreover they have some contractors, coaches and technical staff and advisors. As a Director, she runs and advise all departments and 2 people respond to her directly.
- The Federation does not have a CSR Manager. They do not have any specific policy for managing environmental issues.
- During competitions, they hire external contractors that take care of various services such as the collection of waste. The Board of Directors manages the guidelines for events.
- They have never appointed an internal person for managing environmental issues.
- The Federation has never carried out training or awareness activities on environmental issues before the Erasmus+ DECK Project. Thanks to the project, they are starting to raise awareness on environmental topics and minimise the impact and they recommend the clubs and their employees to do so.

Inputs for governance initiatives

1. Appoint a manager/committee responsible for sustainability issues.
2. Design and implementation of a training and awareness-raising plan including, for example, workshops, webinars, testimonials, challenges and educational activities on environmental issues.

3° Interview

National Federation	Greek Federation
Topic	Operational Management
Interviewee	Petros Satolias
Position	Personnel
Interviewer	Anna Elisabetta Merlini, Rachele Stranieri
Date	08/02/2024

Content of the interview

- Petros Satolias has the responsibility of organising the Greek championships and competitions throughout Greece for all different disciplines: Canoe & Kayak sprint and slalom, Sup, Ocean Kayak, and Surf. He has been in this position for 23 years, since 1999. His main responsibilities include the management of the venues where the competitions take place, the coordination of the rescue teams, the service of the judges during the games. He works in a team of 15 people.

- They implement some environmental best practices during events, such as they promote recycling, but these are not codified in any document.
- They do not have much control over procedures related to energy, waste, and water management. One challenge they mention is the high demand for single use water bottles by athletes, provided by the federation during summer events; there is a waste of water bottles that impacts waste management processes. The interviewee said that it is difficult to manage this.
- To improve its environmental impact, one of the operational practices that the Federation could implement is to provide water stations for athletes during the races, where the athletes can refill their own water bottles, to reduce the consumption of single-use plastic bottles.

Inputs for governance initiatives

1. Codify in a single document the good practices already implemented.
2. Define environmental criteria in the tender process to be fulfilled by the organising committee.
3. Elaborate procedures/guidelines for clubs concerning the management of different environmental aspects (waste, water, etc.).

4° Interview

National Federation	Greek Federation
Topic	Procurement and selection of facilities
Interviewee	Petros Satolias
Position	Personnel
Interviewer	Anna Elisabetta Merlini, Daniele Casiddu
Date	08/02/2024

Content of the interview

- Petros Satolias has the responsibility of organising the Greek championships and competitions throughout Greece for all different disciplines: Canoe & Kayak sprint and slalom, Sup, Ocean Kayak, and Surf. He has been in this position for 23 years, since 1999. His main responsibilities include the management of the venues where the competitions take place, the coordination of the rescue teams, the service of the judges during the games. He works in a team of 15 people.
- They do not have green criteria or procedures that take into account environmental aspects for the selection of suppliers during events. The main criterio is the cost of the suppliers that they use.
- In the selection of the venue they adhere to Olympic Standards; in other cases, the clubs have the responsibility to organise the races.
- The interviewee stated that they organise their main championships in a permanent venue; since it is an old venue, during the summer the air conditioning works

throughout the day. This is a waste of energy but they do not have any power to change this, because the owner of the venue is the State and it has no intention to renovate and modernise the venue.

Inputs for governance initiatives

1. Development of a green procurement procedure that could be useful to guide the federation/clubs in the selection of suppliers during events.

5° Interview

National Federation	Greek Federation
Topic	Organisation of the events
Interviewee	Aristi Acheilara
Position	Supervisor
Interviewer	Anna Elisabetta Merlini, Rachele Stranieri
Date	09/02/2024

Content of the interview

- Aristi Acheilara has been the Federation's sport supervisor for 5 years, she works with clubs, athletes and coaches and she also refers to the Ministry of Sport. She also works for the national teams and she gives guidance to the clubs. She drafts the competition programs, she provides the data required by the Ministry of sport, and also has other responsibilities.
- In terms of environmental practices, they implement recycling of paper, electronic equipment. They also have a program, so that when they give a new boat to the clubs, the clubs must give them back an old boat that the federation repairs and give back to the clubs. Moreover, during the competitions, they have to recycle the plastic bottles and the paper. They advise athletes, coaches and families to recycle in the different bins these two materials. After the competition is finished, they are asked to clean their trash and not to leave it in the environment.
- During the competition, every club is responsible for the catering services, the federation is not responsible for this service.
- They use temporary infrastructures (especially umbrellas) during the national championships and they reuse them many times (5-6 times per year).
- In terms of energy use, they do not have a contract with green energy providers. Most national championships are organised in a national park, they do not have the responsibility to choose where the energy comes from. They have no influence on the choice of energy providers. As a federation they can suggest to implement solar panels for warm water in the hotels but they cannot impose it.
- Regarding mobility, the employees of the federations and judges share cars to go to the events – for saving on fuel costs. During big events they rent buses or vans to go all together. The van of the federation is also used for transporting the national team for

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short distances when athletes do not need to use the plane; this avoids the use of personal cars.

Clubs manage supporters' mobility, because it is difficult to manage many cars and limited parking spaces.

Regarding the boats, they do not usually manage the transportation of the boats for participating in competitions of the national team. They have a company – Plastex – that moves the boats around Europe for participating in the competitions.

- The catering service contractors bring the foot in big trays, serve the food to the athletes in porcelain plates that are then washed and reused; they do not use any plastics. The Municipality takes the waste but they do not know if it gets recycled.
- They agreed that a document that identifies the federation's main stakeholders, their impact on the environment and the possible solutions could be useful for the Federation.
- In the selection of the venue, the federation does not have any environmental criteria. Their main criteria is to have a good weather and a convenient venue to reach by the federation and the participants.

Inputs for governance initiatives

1. Identify the main stakeholders that can influence the environmental footprint of the event and assess their impact and possible solutions/initiatives that organising committees can implement to mitigate these impacts.
2. Drawing up procedures/guidelines on certain environmental aspects management during a competition (e.g. procedure for selecting the event venue while protecting biodiversity, etc.).

NATIONAL CANOE AND KAYAK FEDERATION OF ITALY (FICK)

1° Interview

National Federation	Federazione Italiana Canoa & Kayak - FICK
Topic	Communication
Interviewee	Ilaria Spagnuolo
Position	Communication manager
Interviewer	Anna Merlini, Romina Puccetti (SSSA)
Date	08/02/2024

Content of the interview

- Ilaria Spagnuolo is responsible for the communication area of FICK and also carries out a series of other tasks within the Federation; she is involved in the DECK project and takes care of the administrative part.
- Within the FICK communications office, she takes care of all the internal and external communications, both on FICK initiatives and on competitions and events.

- The main channel used for internal communications is email; communication on the federal website is an intermediate channel that also involves sport enthusiasts. For external communication the Federation uses the social networks Facebook and Instagram (rarely Twitter/X to communicate the most important results during competitions), they have recently started to use Threads. On the FICK YouTube channel, they usually share videos of the races. The target age for external communication is 18-35 years. Institutional communication includes for example calendars, activity programmes, management documents that help clubs carry out their programmes; it usually takes place via email and with publications on the website. Communication to athletes includes awareness campaigns, sponsorship procedures, etc. The journalistic communication includes for example press releases during competitions (that they are trying to digitalise).
- There is no planning or specific strategy to communicate CSR and environmental issues. For social media posts, planning is minimal and follows the flow of events. There is planning only for specific projects (e.g. for the project on plastic collection that involved various clubs). In the institutional website of the federation there is no standardized program for communicating environmental issues, and this could be an added value.
- The Federation could create a special pillar dedicated to sustainability within its website, as one of the central values of FICK, where specific communication on environmental issues can be published periodically. It could be useful to involve clubs through specific *challenges*, inviting them to send videos on these issues, and involving athletes as *testimonials*.
- The involvement of clubs is important because the more they feel involved, the greater the dissemination of contents and communication initiatives. It is important to involve high-level athletes who are sensitive to environmental issues because they are an important vehicle of communication, and on the other hand these communication initiatives would represent an opportunity for them to acquire greater external visibility.
- It is easier to involve athletes, while it is more difficult to involve or train technicians on these issues. In general, the rough water athletes could be more interested because they're the most affected by the negative environmental impacts.

Inputs for governance initiatives

1. Design and implementation of a specific communication strategy on environmental sustainability topics, identifying channels (e.g. a specific section of the Federation's website dedicated to sustainability), macro-topics and a program/plan to make this communication periodic.
2. Identification of stakeholders (e.g., clubs, national athletes, etc.) and involvement as testimonials in communication activities on different sustainability topics.
3. Design and implementation of an engagement and awareness raising plan that include for example, testimonials, challenges and educational activities on environmental topics.

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4. Draft the Federation's first Sustainability Report to share and make visible the organisation's commitment to ESG issues. The SSSA could support the Federation in some phases of the drafting of the first sustainability report (e.g. introduction to GRI standards; support in materiality analysis, etc.).

2° Interview

National Federation	Federazione Italiana Canoa & Kayak - FICK
Topic	Sale & Sponsorship/Marketing
Interviewee	Ilaria Spagnuolo
Position	Communication manager
Interviewer	Anna Merlini, Romina Puccetti (SSSA)
Date	08/02/2024

Content of the interview

- Ilaria Spagnuolo is responsible for the communications area of FICK, and also carries out a series of other tasks within the Federation, including dealing with sponsors.
- FICK does not draft a sustainability report yet, but they plan to do so as it would be useful for the Federation also to attract sponsors. Sponsors are increasingly interested in sustainability, so this would be an important tool for the Federation.
- Within the Federation, the President plays a fundamental role in finding sponsors and establishing the first direct contact with them, after which their contacts are passed on to Ilaria, for the definition of the strategy and the stipulation of sponsorship contracts. Ilaria therefore does not select sponsors, only the President deals with the selection phase.
- There is no specific selection method for sponsors; it is not easy for small sports federations to attract many sponsors; they don't have much influence and economic strength to be able to choose which sponsors they want to work with – there is an economic constraint in the selection of sponsors.
- They do not have a standard "package" to propose to the sponsor but they study a shared approach on a case-by-case basis depending on the needs of the parties. To date, in the 7 years of her work in FICK, Ilaria said that their sponsors have never made specific requests on environmental or sustainability topics. In some cases, the nature/environment topic has been proposed to sponsors by FICK, but it has never been an initiative of the sponsors.
- At the same time, there have never been situations in which the principles or actions of the sponsor were in conflict with the principles of FICK. In any case, the selection takes place upstream and the decisions on which companies to involve come from the president; it is possible that a selection of sponsors (and a list of companies to avoid) occurs in the first phase, but only the President takes care of this.
- It rarely happens that companies look for FICK, usually it is the Federation that contacts the sponsors, and when this happens it involves collaborations with athletes - e.g. radio to make documentaries on athletes. This also depends on the visibility of the sport and

competition victories. The peaks in which they receive the most contacts coincide with specific bigger events and Olympics that provide a higher visibility of the sport.

Inputs for governance initiatives

1. Developing sustainability and ethical guidelines/criteria for the selection of sponsors, ensuring alignment with socio-environmental sustainability values. Prioritize sponsors who demonstrate commitment to eco-friendly practices and ethical standards. This practice would also help enhance the clubs'/federation's public reputation.

3° Interview

National Federation	Federazione Italiana Canoa e Kayak - FICK
Topic	Operational Management (sites, venues, sport centres)
Interviewee	Anna Salvatori
Position	Federal Secretariat
Interviewer	Anna Merlini, Romina Puccetti (SSSA)
Date	09/02/2024

Content of the interview

- Anna Salvatori takes care of the management of the Castel Gandolfo site. She has been working at the center since 2006 and she deals with governance and management issues, while her colleagues deal with operational and logistics issues. The center is located in a natural park. As a SIC zone, the park is subject to specific regulations, therefore when they organize events, competitions, etc., they must always take into account the park's rules on the protection of the local flora and fauna. The park issues an environmental permit with instructions on the practices to adopt to avoid damaging the flora and fauna of the water and the coast. There are no specific indications on the actual site where the FICK center is located.
- Over 1 year ago the Federation started to give instructions to clubs on separate waste collection. In the accreditation phase (before the event takes place), the Federation provides to the clubs a kit with different bags for collecting waste and a document/memorandum on how to collect and differentiate the waste in different bins. In general, clubs have positively embraced this practice.
- In the case of multi-day events, they have established an agreement with the municipality that provides larger containers. At the end of each day, FICK collect the different bags with waste from the clubs and converge them in these bigger bins. They are also thinking to put specific instructions and messages on the bins (e.g. "clean plastic only").
- There is no specific agreement on waste collection with the municipality. The center is small, and Anna is the person that directly contacts the municipality for waste collection and disposal.
- Their drinking water comes from the aqueduct. They plan to have the water analyzed to make sure of its quality, then they can invite clubs and athletes to use reusable water bottles and refill them at the fountain instead of using single-use plastic bottles.

Communicating the quality of their water would help implement this practice and reduce the use of single use plastics.

- They have recently installed solar panels that only provide hot water. Their biggest energy consumption is gas. Through PNRR funds they plan to implement an energy redevelopment plan aimed at introducing renewable energy. A large part of this project is indeed dedicated to environmental protection and energy saving.

Inputs for governance initiatives

1. The good practice of waste collection already implemented at the Castel Gandolfo center could be translated into guidelines/vademecum to be applied in other sites throughout Italy.
2. Evaluate the drafting of a procedure for clubs that facilitates the communication and cooperation with local authorities for managing environmental aspects (e.g., waste and water).

4° Interview

National Federation	FICK – Italian Canoa & Kayak Federation
Topic	Organization of Events
Interviewee	Matteo Ciola
Position	Executive Manager for Caldonazzo Canoa Club and member of Italian National Federation
Interviewer	Anna Elisabetta Merlini, Daniele Casiddu
Date	12/02/2024

Content of the interview

- Matteo Ciola is a director and federal councilor of FICK, in office since 2020. As a federal councilor he deals with the identification and organization of competition fields for events (outdoor), where national competitions take place, and collaborates with the local organizing committees of sporting events. He also follows the winter youth activity and the FICK coach planning (indoor).
- Since his appointment in 2020, Matteo has created an organizational protocol with recommendations and suggestions to help local organizing committees in the organization of canoa & kayak events. Part of this competition protocol is dedicated to environmental aspects: in particular, to the recycling of materials used for the competition fields, to the reuse of the competition fields, to the prevention of waste (e.g. avoid abandoning objects in the water), and to separate waste collection during the event in the athletes' area, public area and organization's area.
- Unfortunately, there is no control procedure that ensures the implementation of the recommendations contained in this protocol, unless he or someone else from the federation personally goes to the competition fields to check it. In many local communities, especially in northern Italy, in many cases separate waste collection and the use of recyclable materials are already common practices. Problems in this regard, for example in the implementation of separate waste disposal measures, arise

especially in central and southern Italy. Compliance with these environmental procedures, therefore, depends greatly on the local committee. The federation acts as a guide and tries to raise awareness among the local organizing committees, but cannot impose these practices. Nonetheless, in general he found that during the last 3 years there has been an improvement among organizing committees and clubs that have increasingly embraced these environmental recommendations.

- With regard to energy, the federation has not set any recommendation for clubs and organizing committees on energy consumption in the protocol he mentioned earlier.
- With regard to temporary structures, there are suggestions in the protocol on the use of structures such as gazebos, which are always reused for multiple events – but he also highlighted that this practice of reuse, as many other practices, is implemented for economic reasons (i.e. these temporary structures cost money and are investments for the federation) rather than for environmental reasons.
- With regard to mobility, the protocol does not indicate anything on sustainable transport. For the Caldonazzo competition, athletes and spectators used the railway from Trento to Venice and a targeted awareness campaign was carried out for promoting the use of the train. This good practice could be extended to other competitions in other places in Italy that are easily reachable by public transport, but it is largely up to the decision of each individual whether to take the car or the public transport, and many people prefer to take the car as it is easier for them; the federation can only suggest and create awareness.
- For competitions at Castel Gandolfo and Milan they are trying to organize “hangars” for boats dedicated to the FICK; in this way they would eliminate the transport issue as there would be no need to transport the boats with vans throughout Italy, but the boats would be rented on site, and the athletes would travel by public transport. This is an ambitious and costly project for the federation but it could create benefits in the medium to long term, both at the economic level (the cost of having a dedicated hangar would be offset by lower transportation costs as the boats would not be transported by vans throughout Italy) and at the environmental level (avoiding long trips by van on the roads for transporting the boats to Milan and Castel Gandolfo).
- For youth canoeing, the Federation gives a special money contribution/prize to the clubs that form a consortium (e.g. if a club from the south or from the islands arrives in Caldonazzo with a van that carries boats of 3 different companies). This practice is already codified in the activity program.
- There are therefore various procedures already put in place by the federation, that should be collected under a single document focused on the environmental sustainability of canoa & kayak events. The work done through the DECK project is an important and unique opportunity in this sense.
- He agreed that a guide on environmental best practices (as envisaged by the DECK project) can be a useful tool that would provide more precise direction to those who organize the events and also to those who participate in the events.
- Moreover, he stated that implementation is a slow process, especially in certain areas. It's easy where there is the support from local administrations and the community, as

in the case of Caldonazzo; it will take more time in larger areas such as Milan or in Southern Italy. Many areas do not have a sense of environmental responsibility, and this is an aspect where he thinks the Federation should intervene. For this reason, he stated that in parallel to creating a codified document that reunites the federation's good environmental practices and adds new ones, it is also important to find effective ways to better disseminate/communicate these procedures to the various clubs. For example, he suggested to involve media networks (e.g. radio) to raise awareness on the environmental issues faced by this sport.

Inputs for governance initiatives

1. Appoint a manager or team to act as a guardian of the sustainability of the event, to ensure the implementation of the measures set out in the protocol.
2. Integrate sustainable mobility measures into the protocol.
3. The good environmental practices already implemented could be brought together in a specific document for the sustainable management of the various aspects of a competition.

CANOE FEDERATION OF SLOVENIA (KZS)

1° Interview

National Federation	Slovenian Federation
Topic	Mission, Strategy & Policy
Interviewee	Andrej Jelenc
Position	Director
Interviewer	Rachele Stranieri, Daniele Casiddu
Date	07/02/2024

Content of the interview

- Andrej Jelenc has been the Director of the National Federation for 8 years, the high management position below the Board of Director. He manages all the structures in the Federation. He used to be head coach of the slalom team and a sport director, responsible for high performance sport.
- The Federation is the governing body of the Canoe sport in Slovenia, member of the International canoe federation, the European canoe association, the National Olympic Committee.
- The Federation communicates its mission and values internally and externally, to the clubs, who run all the programs in Slovenia, its athletes and members, as well as to the Ministry of Sport, National Olympic Committee, etc. The mission statement reflects the Federation’s values. They have a Statute that is published on the Federation’s website, together with other documents and minutes of the most important meetings.

- The mission was discussed and confirmed by the clubs during yearly assemblies. Therefore, the clubs were involved in the creation of the mission.
- Environmental sustainability is included in the statute and strategy of the Federation, but they do not have a strategic plan for it. It is part of their programs that they are developing with the clubs.
- The National Federation is in the process of developing a new strategic plan for the period 2024-2028, that will incorporate environmental strategic objectives. They want to include environmental awareness in their marketing strategy, aligning with potential sponsors that share similar values.
- Currently, there is no dedicated person within the National Federation responsible for environmental initiatives. The small size of the federation and limited resources hinder the appointment of a specific role.
- Communication of the strategic plan is primarily done through emails, meetings, but they also use the website and Facebook.
- The upcoming strategic plan will play a pivotal role in shaping the National Federation's environmental governance. The federation would surely benefit from the help of the DECK Project in the drafting of the next strategic plan for the part related to the environment.
- The National Federation does not currently have a system for monitoring and evaluating performance related to strategic objectives. A monitoring system with performance indicators would be beneficial for assessing the progresses towards its objectives.
- The National Federation has a code of ethics but it does not have any environmental policy. They did not receive any external pressure to adopt this code of ethics. The federation has a Disciplinary Commission composed of 3 people appointed by the assembly. It is an independent body within the Federation that ensures that the code of ethics is respected.
- An environmental policy could be added to this, but it should be confirmed by their Assembly. SSSA could send a proposal for this.

Inputs for governance initiatives

1. Development of the Strategic Plan 2024-2028 taking into account the integration of environmental sustainability issues.
2. Drafting of the environmental policy with the support of the SSSA. Draft environmental policy to be approved by the Assembly.
3. Drafting of an environmental strategy/plan to enable monitoring and evaluation of environmental objectives and initiatives.
4. Designate an environmental sustainability officer/committee within the federation (however, respondents pointed out that there are resource constraints to implement this).

2° Interview

National Federation	Slovenian Federation
Topic	Procurement & Selection of Facilities
Interviewee	Dusan Konda
Position	Director of Sales and Sponsorships
Interviewer	Nicolò Di Tullio, Daniele Casiddu
Date	07/02/2024

Content of the interview

- Dusan Konda has a strong background in sports, particularly kayaking, and extensive experience in managing a sports club in Slovenia.
- Dusan has dedicated almost all his life to Kayak. Initially, he worked for a Slovenian trading business company for 23 years, where he was responsible for green agricultural programs. In parallel, when he was young, he was in the Yugoslavian kayak downriver national team but he had to stop at age 20 years due to heath issues. When he was still a student, he became President of the Nivo Celje Kayak and Canoe Sports Club and he has been in this role for almost 40 years (since 1985). In 2006 a fire destroyed the wooden boathouses of the Club and all the boats, and thanks to his guidance, in the past 15 years they built a new, modern and bigger Sports Club: a building of 1000 sq meters near the river Savinja that also includes a restaurant. 12 years ago he decided to leave the trading company he had worked for 23 years and to dedicate all his work to leading the Celje Kayak Sports Club and its restaurant, that employs 25 people. He is also in the Slovenian Board of Kayak.
- He is involved in various kayaking events and projects and he has a lots of connections in the government of Celje. For example, next year they want to build a new slalom course in the river Savinja, a project that will cost 3 or 4 milion euros. Moreover, they are building a hostel near the boathouse that can host up to 50 paddlers that train in river Savinja. The construction of the new slalom course and the hostel aims to enhance the club's facilities and further promote kayaking in the region.
- He manages 40 paddlers within the Celje Sports Club, 3 national slalom champions in Slovenia and a young team of 15-18 years old athletes, and 3 coaches. Now his club is the 3rd or 4th in Slovenia.
- The restaurant is the main sponsor of the Celje Kayak Sport Club.
- Dusan plays a pivotal role in finding sponsors for the sports club and the competitions through his personal connections, especially in Celje.
- Certain sponsors, like insurance companies, may have exclusivity clauses, limiting the presence of logos of competitor companies during the same event. This sometimes is regulated in the contracts. However, sponsors have not raised any sustainability requests until now.
- Dusan organizes major kayaking events, attracting around 2,000 spectators in Celja, and ensures media coverage with international reach for world championships. The

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club has installed special antennas on the roof of the boathouse for international broadcasting, and a fixed lighting system in the river for evening competitions. Journalists, business people and politicians also come to the events. His events also include cultural events like rock concerts, showcasing Dusan's multifaceted approach to kayaking promotion. He has attracted around 100 sponsors, thanks to his own connections.

- Dusan does not employ any criteria for the selection of sponsors, the focus is on securing support from a variety of sponsors to sustain the club's activities. Nonetheless, he stated that so far he has not encountered any issue with the sponsors, he has not partnered with any unethical, criminal or problematic company. He has been working with the same or very similar companies for the last 20 years and they are all fair and good companies.

Inputs for governance initiatives

1. Developing sustainability and ethical guidelines/criteria for the selection of sponsors, ensuring alignment with socio-environmental sustainability values. Prioritize sponsors who demonstrate commitment to eco-friendly practices and ethical standards. This practice would also help enhance the clubs'/federation's public reputation.
2. Define sustainable procurement procedure.

3° Interview

National Federation	Kajakaska Zveza Slovenije (KZS)
Topic	Organisation of games, events
Interviewee	Gašper Pavli
Position	Creative Director, SportMediaFocus
Interviewer	Rachele Stranieri, Romina Puccetti (SSSA)
Date	13/02/2024

Content of the interview

- Gašper Pavli is the creative director of the sport marketing agency SportMediaFocus; the agency also supports the organization of big sport events throughout Europe, working with different European sport federations. In the last two years, since 2022, they have started to offering support for organizing sport events in a sustainable way. Gašper Pavli is also part of the local organizing committee of the Slovenian Kayak Federation: his role is to advise the Federation on how to organize bigger events in a more structured way.
- They have prepared and are following a specific document ("Action Plan") for the organization of sport events; the Action Plan includes 48 actions, in order to achieve 26 goals in 12 areas: social responsibility, mobility, waste management, food & beverage, environment, energy, water, infrastructure, communication, procurement, financial sustainability, legacy of the event.

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- During the 2022 European Championship in Ljubljana, they calculated the carbon footprint of the event; the results of this assessment helped them select the areas of interest and actions to include in the Action Plan.
- In terms of communicating their plan, he mentioned for example that they are trying to communicate their Mobility plan as much as possible and promote public transport and cycling, in collaboration with the municipality of Ljubljana. They also made promotional videos with the participation of Slovenian athletes as testimonials.
- They do not know how many actions the Slovenian Kayak Federation has taken so far, also because they have started working with them only 2 months ago, but he mentioned that the Federation is very conscious compared to other sports Federations; he just doesn't know how structured and systematic they are in this work.
- He pointed out that all stakeholders are involved in the environmental impacts of events, including "indirect" impacts from contractors like catering services; the Federation has to make sure that they adopt environmental actions through specific procurement policies and contracts.
- The Municipality is the key stakeholder that allow the successful organization of an event in a sustainable way.
- He is interested in calculating the EF of one event of the Federation together with SSSA. The selected canoe competition will take place on May 15-19, 2024.

Inputs for governance initiatives

1. Collaboration between SSSA and SportMediaFocus in the calculation of the Carbon Footprint of the 2024 European Canoe Championship. The results would be compared to the CF already calculated for the 2022 event and will allow to implement a more effective system for monitoring the action implemented thanks to the guidance of the already existing Action Plan.

4° Interview

National Federation	Slovenian Canoa Federation
Topic	External Communication
Interviewee	Urša Kragelj
Position	External Consultant
Interviewer	Rachele Stranieri, Daniele Casiddu
Date	07/02/2024

Content of the interview

- Urša Kragelj is a former athlete and now is helping the federation with some communication activities. Privately she works for the Sustainable Business Network, a Slovenian association helping to promote sustainable businesses, therefore the Federation wants to involve her in this sustainability project, because there is no person within the federation that is specifically responsible for sustainability issues.

- Mainly she works with TV technical commenting of national and international competitions, but she also helps the PR with social media contents. They advertise competition events or athletes.
- Besides digital channels (website and social media + a separate page dedicated to a specific events) the Federation promotes its events and activities through brochures/leaflets, billboards, and big banners made of plastics placed throughout the event venue, displaying the logos of sponsors.
- In the past the Canoa Federation, through its communication activities, targeted mainly people above 45 with families, because the Federation did not focus on the youth, but since today not many young people are choosing canoe as a sport, the Federation is now developing a completely new marketing strategy that mainly focuses on youth (below 18 years old) and families with children. In order to create the new communication and marketing strategy, 2 years ago the Federation performed a market research through qualitative and quantitative analysis (interviews to spectators during events and also to people passing by the streets + questionnaire to assess the perception of canoa & kayak as a sport.
- Usually, 2 people inside the federation collect information to be communicated during events. Often, but not always (depending on the budget), the Federation hires external marketing agencies to help with communication on sustainability management and for branding/social media content.
- This year, the Federation is putting much more effort in the organisation and communication of the European Championships: 6 months ahead of the event, they are already informing teams that this is going to be a sustainable event, through emails and invitations. Later on the plan is to communicate the sustainability of the event through social media, emails, website and all other channels of the Federation. They are going to reach out also to local authorities to get more funds and support.
- Topics of communication are focusing on environmental sustainability, not on social or ethical topics.
- They are going to also involve local organisations, schools (so kids can attend the event), and they will provide local and vegan food options.
- The Federation does not have a sustainability report.
- The Federation aims to become a leading sustainability sports federation in Slovenia, therefore understanding the main stakeholder and their main interests would be a huge opportunity because there are more and more companies that are looking for organisations involved in sustainability, and the companies that care about sustainability are going to be the Federation's future sponsors.

Inputs for governance initiatives

1. Drafting the Federation's first Sustainability Report to share and make visible the organisation's commitment to ESG issues. The SSSA could support the Federation in some phases of the drafting of the first sustainability report (e.g. introduction to GRI standards; support in materiality analysis, etc.).

5° Interview

National Federation	Slovenian Canoe and Kayak Federation
Topic	Operational management
Interviewee	Andrej Humar
Position	Operative manager
Interviewer	Rachele Stranieri, Daniele Casiddu
Date	31/01/2024

Content of the interview

- Andrej Humar is the secretary of the Soške Elektrarne Kayak Club, one of the strongest clubs in Slovenia, and collaborates with the Federation, in particular he deals with the development of sport and tourism and the organization of local, national and international events.
- The federation does not have any environmental procedures or practices for organizing events, to reduce their environmental impact – they have been talking about this for several years but are still behind on this. The DECK project is a first initiative in this direction. When they organize large competitions (e.g. 900 athletes for 6 days) they use external contractors for catering and other services and some contractors already implement some practices (e.g. avoiding single-use plastics) in compliance with Slovenian regulations on the reduction of single-use plastics. By now, the federation has only considered economic aspect in the organization of events, and not environmental aspects.
- Regarding mobility during events, they organize buses for shared transport of fans and families during larger competitions. Furthermore, the athletes and staff are located in accommodations near the event venue. For spectators and even some accredited guests they cannot guarantee parking; for this reason, and to cut costs of individual journeys, they try as much as possible to promote car sharing – again, for economic rather than environmental reasons. Public transport is free, subsidized by the municipality.
- They organize “Eco-days” in cooperation with nearby schools to promote environmental awareness especially on water and waste issues (not mobility). They cooperate with Utra, national agency for the defense of flora and fauna and organize workshops to raise awareness especially on the importance of keeping the local river clean. They also collaborate with an organization that works to save European rivers, but a conflict has arisen because this organization is against hydropower plants, and their major sponsor is a hydroelectric power plant.
- When the Federation organizes larger competitions, they need permission from the state and must present a mobility plan.
- When asked how they select an area for competition, he said that they have two main sites that they typically use for competitions. They respect all the rules imposed by law and by the municipality, but they do not have a procedure and environmental aspects

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are not considered in the selection of an area. The law protects, for example, the national parks (by law, competitions cannot be held on protected natural parks).

- There are no environmental indications in the tenders or in the contracts for the organising committee.
- The interviewee confirmed that it would be useful to draw up environmental guidelines for clubs on the organization of events, but does not believe it is appropriate to impose environmental criteria in contracts.
- Currently, what guides the Federation's choices in the organization of competitions are the economic aspects. The ICF could give suggestions/criteria for the selection of places that can host competitions.
- A big challenge lies in extending sustainable approaches to involve spectators. Spectators must be educated and encouraged to adopt sustainable behaviours, sometimes this must be imposed, otherwise they often don't adopt them (e.g. they leave waste on the ground). If this is imposed by the ICF through guidelines (e.g. using public transport, not using plastic) it would facilitate the process.
- Evaluation of their environmental impact during the events and possible solutions to these could be useful for the Federation in order to run events more sustainably.

Input for governance initiatives

1. Define environmental criteria in the tender process to be fulfilled by the organising committee.
2. Identify the main stakeholders that can influence the environmental footprint of the event and assess their impact and possible solutions/initiatives that organising committees can implement to mitigate these impacts.