

Vending machines for food and beverages

University of Cagliari (Sardinia, Italy)

Background

The [University of Cagliari \(UNICA\)](#) is a public higher education institution with approximately 25,000 enrolled students and 3,000 staff. It is located in Cagliari, the capital of Sardinia, an island located in the Mediterranean Sea.

UNICA is highly committed to promoting the reduced use of disposable plastic items, with the end goal of eliminating them. It adheres to the [Network of Sustainable Universities \(RUS\)](#), the first national network of collaboration between public and private university institutions engaged in the issues of environmental sustainability and social responsibility. Moreover, together with other Italian universities, UNICA took part in the campaign [#StopSingleUsePlastic](#) by [Marevivo](#) and [CoNISMa](#) (the national inter-university Consortium for marine sciences) for raising awareness and education for the protection of the maritime environment.

Several initiatives are already being undertaken by UNICA including a ban on the use of plastic bottles and cups during academic meetings, events and conferences, and an initiative which provides first-year students with steel water bottles, and similar initiatives targeting technical-administrative staff. The current initiative on vending machines is well placed in the context of the [EU plastics strategy](#) and the [EU Directive on single-use plastics](#) (that will be transposed into the Italian legal system). This procurement not only banned single-use plastic items, but also put in place a circular economy model in which waste is given a new life and turned into a novel product.

Procurement objectives

This particular Concessions contract¹ is part of UNICA's sustainability policy and aims to improve the services provided by the University in terms of environmental sustainability, through the reduced use of plastic and the



¹ The definition of concession contract may be found in the [Directive 2014/23/EU](#), under Art. 5: «'Concessions' means works or services concessions, as defined in points (a) and (b): (a) 'works concession' means a contract for pecuniary interest concluded in writing by means of which one or more contracting authorities or contracting entities entrust the execution of works to one or more economic operators the consideration for which consists either solely in the right to exploit the works that are the subject of the contract or in that right together with payment; (b) 'services concession' means a contract for pecuniary interest concluded in writing by means of which one or more contracting authorities or contracting entities entrust the provision and the management of services other than the execution of works referred to in point (a) to one or more economic operators, the consideration of which consists either solely in the right to exploit the services that are the subject of the contract or in that right together with payment».

promotion of circular waste management. Such procurement actions have contributed to meeting [United Nations Sustainable Development Goals](#) No. 12 (responsible consumption and production), 13 (climate action), 14 (life below water) and 15 (life on land).

The procurement consisted of a Negotiated Procedure. An Expression of Interest was first published in March 2019 in order to identify potential suppliers to be invited to participate.

Criteria used

For some years Italy has been developing and advocating for the implementation of [Minimum Environmental Criteria](#) (MECs, referred to as CAMs in Italian) in public procurement for several procurement categories. The Criteria, which are mandatory, were introduced to achieve the objectives set out in the [National Action Plan \(NAP\) for Green Public Procurement \(GPP\) in Italy](#) (of 2007) and to promote sustainable production and consumption, and circular economy models. This procurement procedure was carried out in 2019, when [the previous version](#) of the MECs for catering service collective and supply of food was still in force. In March 2020 the Italian government published [a new version](#) of such MECs.

Subject matter of the contract:

Concessions contract for spaces intended for the placement of 64 automatic vending machines. The food and beverages (both hot and cold) provided from the vending machines have to be compliant with the University's policies for the massive reduction (and eventual elimination) of plastic and sustainable waste management.

Technical specifications:

The procurement procedure includes technical specifications about fresh or processed food produced using organic farming methods in compliance with the MECs referred to in the Ministerial Decree of the (Italian) Ministry of the Environment and Protection of the Territory and the Sea on "Catering service and supply of foodstuffs" (Ministerial Decree of 25 July 2011 in the Official Gazette of the Italian Republic n. 220 of 21 September 2011), as applicable in the context of vending machines.

The foods and drinks offered had to fulfil the following requirements:

- At least 40% of a range of foodstuffs must come from organic production (including fruit, vegetables, and bread and bakery products);
- At least 20% of the products must come from "integrated production systems" (with reference to the UNI 11233:2009 standard: Integrated production systems in agricultural food chains - general principles for design and implementation in vegetal food chains);
- For carbonated drinks, cold tea, fruit juices and other drinks (for example, energy drinks), the use of plastic is not allowed.

In addition, the vending machines had to comply with the following environmental features:

- The machines used for dispensing drinks had to provide cups and stirrers in materials other than plastic;
- Vending machines had to comply with the technical and sanitary regulations;

Award criteria:

The contract was awarded based on the most economically advantageous tender, identified on the basis of the best price-quality ratio. Bidders were evaluated using a point-based system. Each candidate could achieve a maximum of

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100 points. The award criteria covered the following:

- Environmental sustainability and waste disposal (up to 15 points);
- Product packaging with particular focus on reducing the use of plastic (up to 20 points);
- Dispensing mineral water without the use of plastic (up to 20 points);
- Characteristics of packaged products and hot and cold drinks with particular attention on organic products, lactose-free and gluten-free, no added sugar products, zero-miles products (up to 15 points);
- Energy class for vending machines (up to 5 points).

Contract performance clauses:

The contract performance clauses associated with sustainability are the following:

- Plastic water bottles are prohibited;
- The successful tenderer must provide the collection of coffee capsules for differentiated treatment;
- The successful tenderer is responsible for collecting the coffee residues and for delivering them to a specific company that reuses them to produce fertiliser for plants.

Results

Four suppliers submitted bids. The four suppliers described in their technical reports their ability to execute the contract to bring the lowest possible impact on the environment through the application of an environmental management system. They described how they intended to achieve the objectives set out in the evaluation criteria, focusing on:

- Products supplied;
- Product management system;
- Waste management system;
- Vending machines' energy performance;
- Packaging features.

All award criteria were met by the successful tenderer, with the winning bidder scoring 89.889/100. The contract was awarded in September 2019.

The annual value of the concession is €210,000, plus VAT. The contract has a five-year duration and can be renewed for a further year.

Environmental impacts

- Elimination of single-use plastic: the vending machines dispense hot and cold drinks in containers made of 100% compostable material, in the case of hot drinks, while cold drinks are dispensed in privy plastic containers (Tetra Pak®, glass, aluminium) and are recyclable.
- Compliance with the principles of a Circular Economy: coffee residues are recovered by a specialised company and are reused for the production of plant fertiliser; the hot drink containers are 100% compostable.
- Reduction of CO₂ emissions: the vending machines offered meet energy class A+ and A++.
- Contributing to the local separate collection of waste (which reaches 70% of the total waste) by placing some special containers for waste separated by type (organic waste, glass, paper, aluminium) next to the vending machines.
- Contributing to sensitising on the consumption of more sustainable and inclusive food and drinks;
- Raising awareness on the need to limit plastic production and use due to the serious risks it causes to the environment and human and animal health;
- Incentivising to separate waste by placing special containers for waste separated by type (organic, glass, paper, aluminium).

Lessons learned

The contract is monitored by a specifically appointed execution manager to ensure the correctness and compliance with the contract execution clauses. Monitoring is based on the information given in the tender specifications and in the technical report submitted by the contractor. In case of specific complaints from users of the service, the annual monitoring does not exclude further verifications and controls at shorter deadlines. This guarantees a better service, that is more responsive to customers' needs.

The contract was awarded fairly recently, so full compliance with the administration's needs will occur at the end of the five-year period (possibly six). The monitoring will also be useful for the evaluation of future tender procedures in order to obtain further improvements and new ways in delivering the vending service, such as the addition of still water dispensers from the city's water network.

In terms of waste management, future contracts will provide waste recovery systems for separate treatment, which will improve waste management systems.

The experience described is easily replicable in all other public administrations and allows the food market to be directed towards choices increasingly inspired by sustainability through the pressure exerted by public demand.

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For related information, please see [European GPP criteria for Food, Catering Services, and vending machines](#), and the [Technical Background Report](#).

For the Italian Minimum Environmental Criteria (CAMs) for catering service collective and supply of food currently in force, please [click here](#).