



## Evaluation of the relation of the User Assistance Service (UAS) Rio Grande with the ecosystem service of water provision

### EXECUTIVE SUMMARY

The *Empresa Concessionária de Rodovias do Sul*, known as *Ecosul*, belongs to the *EcoRodovias* group, created in 1998 to manage the Pelotas' Road Pole, which includes the BR 116/RS (from km 400 to km 659) and BR 392/RS (from km 0 to km 68 and from km 71 to km 200). Among the services provided by the company in the Pole, there is the UAS - User Assistance Service - which provides infrastructure for travelers, such as rest area and toilets.

The operating units of the concessionaire depend on water for proper operation, but public water provision systems are not available in the units' locations. The concessionaire, therefore, captures water in the underground, which depend on authorization to explore the water. In this context, the company opted to evaluate its relationship with the ecosystem service of water provision, in terms of dependency and externality, in its new unit *UAS Rio Grande*. In the absence of the authorization for water use at the time of opening of the UAS, there may be unavailability of water in the operational units, and it is in the company's interest to quantify and assess this risk, as well as to consider alternatives for water use in these locations.

Considering that the *UAS Rio Grande* is not operating yet, historical data from other units were used, considering the availability of 100% of the amount of water required for

the normal operation of the UAS. Scenarios of water unavailability were not considered. The valuation was done by the Replacement Cost Method (RCM), considering the replacement of the water necessary for the operation of the UAS by water tank truck.

The dependence of the amount of water is 0.009 m<sup>3</sup> per UAS user, valued at approximately R\$ 6.4 thousand. The externality was 1.7 thousand m<sup>3</sup> per year, which becomes unavailable to other users, since there is no return of the water captured by the company to the water body. The externality was valued at approximately R\$ 7.9 thousand.

These results represent one of the indicators that should be considered when planning projects that require water provision and risk management by the business. Water unavailability may result in fines and other risks, such as disruption of activities and damage to the company's reputation.

For the *SAU Rio Grande*, the only alternative method of water provision was the water tank truck. However, whenever possible, it is relevant to consider, when choosing the location of the operating units and its management, other alternatives for water replacement, as well as scenarios of unavailability and the comparison of these replacement costs with the possible costs resulting from suspension of operations.



## Reporting of dependencies, impacts and externalities

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### Project drivers

**Goals:** Understand the business relationship with ecosystem services.

**Description:** The operating units of the concessionaire are totally dependent on water, for the use of employees and users and washing; there is no availability of public water supply in the localities where the units are established, forcing the concessionaire to capture the resource through underground wells, which depend on government authorization. If this authorization does not occur in time, there is a risk of water unavailability in the operational units, and it is important to quantify and assess this risk, as well as to think about alternatives for water use in these locations.

### Project scope

**Object of the project analysis:** Project.

**Description:** Evaluate alternatives and related costs for provision of drinking water in the company's new user assistance service unit (UAS Rio Grande), as well as to identify alternatives to reduce the consumption of this resource.

**Geographic Area:** The area is located in the domain path comprised by Km 33 of BR-392, under the geographical coordinates Lat. 32° 1'16.52"S and Long. 52°17'17.36"O.

**Step(s) of the value chain included:** Own operations.

**Type of approach:** Retroactive.

**Time Horizon:** One year (2016).

**Ecosystem Services:** Water provision.

### Water provision

**Role of ecosystems in the hydrological cycle and their contribution in terms of water quantity, defined as total production of freshwater.**

**Method(s) Used:** Replacement Cost Method (RCM).

#### Results

**Dependency:** R\$ 6,4 thousand

**Impact:** Not calculated

**Externality:** R\$ - 7,9 thousand

#### Data used

#### Type of data

**Dependency on the quantity of water:** 0,009 m<sup>3</sup>/UAS user.

**Hydrological balance of the water used by the business:** - 1.776,10 m<sup>3</sup>/year.

Primary/Own

**Watershed from where water is collected, name and classification of the water body:**

Primary/Own

Underground well (Mirim Lagoa Basin and Sao Gonçalo Channel).

**Watershed used for water replacement, name and classification of the water body:** N/A.

**Further information**

- All water to be collected originates from underground tubular well.
- There is no possibility of water replacement through another natural water source. The only replacement option, if the water is unavailable, is the supply by water tank truck.

**Results of physical metrics:**

- Scenario of 1.434,29 m<sup>3</sup> of unavailable water.
- Zero m<sup>3</sup> of water collected, however, compared to the other existing UAS, a minimum of 1500 m<sup>3</sup> would be required per guarantee.
- There is no water directly returned to the river basin.

**Assumptions adopted in the valuation estimates:** Considering that the SAU was not operating until then, for analysis purposes, historical data from other units were considered on the quantity of water required for the normal operation of the UAS, with availability of 100% of this water (scenarios of unavailability were not considered). For the valuation, the replacement by water tank truck was considered.

**Adjustments or derivation applied to the methods and tools used:** N/A.

**Others:**

- All the water used in the business activities comes from underground tubular well, which requires an environmental agency authorization for its use.
- There is no water return, used or not, for the water body.

**Explanatory Notes:** N/A.

## Analysis of the results

It is clear that the use of alternative methods of drinking water supply becomes economically unviable when compared to the use of underground wells. Furthermore, with the use of wells, we can effectively monitor the quality of the water provisioned to the users/customers and not have external problems, i.e. unavailability of water tank trucks, of water from the supply source, etc.

Another extremely important point is that, if water is not available, the business can not operate, that is, there is no user assistance, a fact that can generate fines by the regulatory agency of the concession contract. In addition to the measurable costs of the fines, there are also other intangible costs, such as a possible negative image for the company, because in case of interruption of the activities of the UAS, there will be several complaints.

## Management of ecosystem services

**Use of ecosystem service valuation results:** Environmental management systems.

**Description:** In order to avoid problems in the next projects/constructions in general, which demand water provision, it is clear that planning is necessary in order to anticipate the whole process of requesting the authorization with the environmental agency, since there may be setbacks during this procedure.

**Realização**

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