



OAT: Indicators system for transparency in water
management in Terrassa

OAT Briefing Report

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1. INTRODUCTION

This document is one of the results of a project conducted for a research-action workshop on sustainability science and technologies at the Universitat Politècnica de Catalunya (UPC).

1.1. First observations

We, a group of five masters students from the UPC, were first introduced to the public water service in Terrassa (Taigua) and the Terrassa Water Observatory (OAT) on February 16th, 2021. Through an introductory presentation led by Martí Rosas followed by an introductory meeting that involved a lengthy question and answer session, we were able to gather our initial observations regarding the water service in Terrassa, along with what we considered its strengths and its weaknesses.

The initial observations were that, in theory, in 2018, the water management of Terrassa transitioned from a private to a public entity. However, although the name and tax code changed, it appeared that Taigua was still following a more private model of water management. As well, Martí explained to us the lack of community awareness and participation in the management of the service.

The strength identified include:

1. Taigua website does mention that the service is public and they have a section dedicated to transparency on their website.
2. The observatory OAT has already been developed and 6 working groups have been formed.
3. OAT is mentioned on Taigua's website.

The weaknesses identified include:

1. Taigua does not appear to include OAT in many aspects of their work.
2. Taigua mentions the idea of transparency on their website, but the website lacks many things, such as indicators, work plans, documentation, etc., which are needed for full transparency.
3. Taigua does not appear to be actively encouraging citizen participation nor do citizens appear to be engaged.

With the initial observations and strengths and weaknesses identified, our team conducted participatory action research to investigate how citizens could become more involved in the management of their water service through the creation of a list of indicators.

1.2. Main objective

The main objective of the work was to develop a system of indicators for a sustainable, community driven, and transparent water management in Terrassa. These indicators would be proposed for different working areas to be considered in the assessment of the integral water cycle in the city, and taking into account the social, environmental, technical and economic dimensions of the service.

1.3. Classification areas

Based on previous works conducted by students of the course in previous years, seven indicator target areas were already identified.

1. Transparency indicators

2. Citizen participation indicators

3. Service quality indicators

4. Water quality indicators

5. Social indicators

6. Environmental indicators

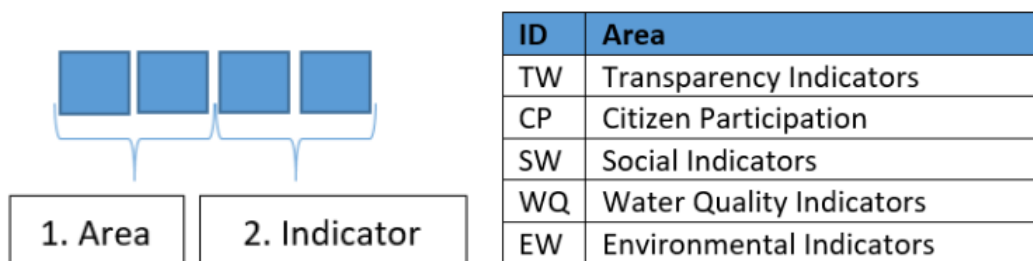
7. Economic and financial indicators

For this work, due to the limitations of time and resources, our group decided to focus on the five indicators listed in bold above. Since many previous works involving indicator lists for OAT have already been drafted, many of the indicators previously identified have been adopted in our work. The previous works have been cited below in the bibliography section.

1.4. Nomenclature of indicators

In this document the indicators have been coded as follows:

1. The first two digits indicate the classification area
2. The second two digits are the code of the indicator



2. SELECTION OF INDICATORS

2.1. Research methodology

The research methodology applied was based on the elaboration of two surveys (one for the population and other for experts in the field) and a creative workshop. The main aims of the surveys were to obtain information about the involvement and interest of Terrassa's community in water management; find several correlations between the different profiles interviewed; and increase citizen involvement, because if they were to start questioning water management it would result in an increase of interest and involvement in the issue.

2.2. Research results

From the workshop we extracted two main conclusions, according to each one of the two groups that were made. The conclusion of group one is related to social aspects providing a strategy called: IAF strategy. They had three steps: first, the information programme; then, an awareness campaign; and finally, the formation of the population (empowerment). The conclusion of group 2 is named The Bill strategy and the steps for

this solution are: first, channeling; then, connection with citizens; and finally, management of indicators on the water bill. This conclusion is more related with citizen participation.

According to the expert survey results, although not a very representative response, most experts agree that environmental sustainability is the area in which they can improve the most. However, they also agree that transparency and citizen participation are also necessary. Looking at the experts' responses, we also see that most of the objectives are important to them, with citizen participation standing out (83%), followed closely by the implementation of sustainable management and efficient use of water resources (67%).

Finally, the population survey showed us that the most important area for the population of Terrassa is the transparency of the sector (83%), followed by ensuring access to drinking water for all (65%), and very close behind is the area of quality of service (61%). According to the indicator areas, we can see that the citizens consider almost all of them important. We can highlight again the transparency needs (65%), the accessibility to the service (56%) and the improvement of water quality (52%).

2.3. Methodology for the selection of the indicators

In conjunction with the participatory action research we started developing the list of indicators. Our methodology for drafting the indicators list is as follows:

Step 1

The initial process involved doing a deep dive and scouring the internet and other resources for all the indicators we could find on our 5 chosen areas. The result was a list of over 200 indicators.

Step 2

Once the initial list was created, we abbreviated the list to a more concise list of around 100 indicators, only choosing the most relevant for OAT and Taigua. At the same time the nomenclature was created, and the indicators were labeled and separated by classification areas.

Step 3

Lastly, once we analyzed the results, we made the final selection of indicators. In order to make the selection based on the results obtained, we carried out a weighting according to the level of importance we gave to each research tool used. For us, our most representative results were the survey of the population, so we gave 70% importance to the opinion of the population. The remaining 30% was divided into 20% for the experts opinion and 10% for the workshop responses. The indicators were selected based on the responses and the weights of the responses.

3. TRANSPARENCY INDICATORS

3.1. Objectives

The objectives for transparency in Terrassa's water management are as follows:

1. Require free access by citizens through various channels, to all the information of the service that does not require one protection in legal terms within the framework of the Transparency Act and other applicable regulations.
2. Strengthen the integrity of Taigua.
3. Raise public awareness and facilitate citizen involvement.

3.2. Indicators

Based on the objectives written above, the results of the research, and the criteria selection based on the results, below is the proposed list of transparency indicators for Taigua.

ID	Indicator
TW01	An organization chart and directory of institutional or departmental positions with telephone numbers and/or email addresses is provided.
TW02	There is a clear mechanism for attention, suggestions, complaints and requests for information from citizens (virtual office, information and education office).
TW03	The number of requests, suggestions, and complaints received and the replies provided within the deadline are specified, specifying whether they have been answered or rejected, at least on an annual basis.
TW04	An executive summary of the Demarcation's Hydrological Plan (H2025), Programme of Measures, budget and implementation schedule is available.
TW05	The Annual Report of Taigua for the last financial year is available on the website.
TW06	Information is disseminated on files in the public information phase, including new plans and projects (hydraulic works, interventions in the public hydraulic domain, etc.) and the Environmental Impact Statement and other mandatory reports.
TW07	Periodic monitoring reports are published on the indicators
TW08	Information is provided on non-compliance with Water Quality Regulations (number of times permitted levels are exceeded each year and average values) at least annually.
TW09	Annual consumption (measured or estimated) is published annually, broken down by uses and systems of exploitation or body of water and origin of the resource (recommended).

4. CITIZEN PARTICIPATION INDICATORS

4.1. Objectives

The objectives for citizen participation in Terrassa's water management are as follows:

1. Incorporate citizen participation in all aspects of the water management of Terrassa.
2. Incorporate citizen participation in the policies and strategic decisions that affect the service. Both in the realization and approval of the different documents that articulate the operation and the continuous improvement of the service.
3. Include citizens in the presentation of proposals for the operation of the public entity that manages water, the preparation of studies and reports, the provision of information and training to the public, and public control in the rendering of accounts.
4. Establish operating procedures that support citizens' awareness of the allegations, suggestions, and proposals received on the actions of Taigua.

4.2. Indicators

Based on the objectives written above, the results of the research, and the criteria selection based on the results, below is the proposed list of citizen participation indicators for Taigua.

ID	Indicator
CP01	Presence of citizen representation on boards of directors
CP02	Existence of citizen participation bodies
CP03	Mechanisms of citizen participation
CP04	The allegations, suggestions, and proposals received on the actions of Taigua subject to public consultation are published (e.g. proposal of new hydraulic works, collective granting of concessions)
CP05	The responses from Taigua to the suggestions, proposals and allegations submitted are available and easily accessible

5. SOCIAL INDICATORS

5.1. Objectives

The objectives for social indicators in Terrassa's water management are as follows:

1. Incorporate the principles of equality, equity, economic capacity and social justice.
2. Analyse whether the basic supply of drinking water is being guaranteed to those parts of the population that are at risk of residential exclusion and in conditions of energy poverty.

3. Give the society the opportunity to assess the quality of the service.
4. Analyse the quality of social activities related to water and its management that raises awareness of water as a common good.

5.2. Indicators

Based on the objectives written above, the results of the research, and the criteria selection based on the results, below is the proposed list of social indicators for Taigua.

ID	Indicator
SW01	Quality of service
SW02	User evaluation of the tariff
SW03	Potential dimension of energy poverty in the city
SW04	Average price invoices RER families (% of average family income)
SW05	Percentage of people with delays in payment of basic utility bills
SW06	Affordability of the service (annually)
SW07	Educational and social activities
SW08	OAT web news channel, press releases, and campaigns

6. WATER QUALITY INDICATORS

6.1. Objectives

The objectives for water quality in Terrassa's water management are as follows:

1. Elimination of the differences by zones, guaranteeing that all the neighbors of the city of Terrassa perceive the same quality of the water they consume, regardless of where they live and the origin of the water.
2. Prevent and report occasional deviations from certain parameters such as nitrates and / or phosphates in networks provided with water from the river Llobregat.
3. Quality of supply water from the point of view of the user or consumer, based on their organoleptic characteristics and mainly taste.

6.2. Indicators

Based on the objectives written above, the results of the research, and the criteria selection based on the results, below is the proposed list of water quality indicators for Taigua.

ID	Indicator
WQ01	Water quality in the Llobregat river (catchment) (%)
WQ02	Water quality in the Llobregat river (catchment) (%)

WQ03	Quality of water supplied (%)
WQ04	Dispersion of quality (%)
WQ05	Compliance with organoleptic tests (%)
WQ06	Dispersion in organoleptic qualities (%)
WQ07	Valuation of water by users (%)
WQ08	Wastewater treated in accordance with current regulations (%)

7. ENVIRONMENTAL INDICATORS

7.1. Objectives

The objectives for environmental indicators in Terrassa's water management are as follows:

1. Environmental sustainability, the achievement of the good condition of water bodies and compliance with the principle of non-deterioration.
2. Rationality in the use of resources through their integrated management combined with adequate demand management.
3. Economic sustainability, through the assessment of all costs (financial, resource and environmental) and the trend towards full recovery.
4. Social sustainability, understood as proactive public participation, through information and consultation processes in the decisions that are taken.

7.2. Indicators

Based on the objectives written above, the results of the research, and the criteria selection based on the results, below is the proposed list of environmental indicators for Taigua.

ID	Indicator
EW01	Dependence on external sources
EW02	Reclaimed water used (m3)
EW03	Non-drinking water supply master plan
EW04	Volume of water savings in domestic users and municipal facilities (m3)
EW05	Municipal water saving ordinance and campaigns
EW06	Water and carbon footprints of the city of Terrassa

8. METHODOLOGY FOR COMMUNITY INVOLVEMENT

The methodology that we have created is a way to involve the population and experts in the creation of the indicators through surveys and workshop activities (maximum 10 people for each workshop). It is recommended to carry out multiple workshop activities across the Terrassa districts. For this, the population and/or experts are invited to participate in the 40-minute workshop. Here we will show the templates to use for the activity and the time that the participants will have to carry out each one. We will also show the survey templates so that they can be carried out.

8.1. WORKSHOP

Workshop time management plan:

- (2 min) - Presentation of the research project
- (3 min) - Explanation of the workshop - (Objectives)
- (10 min) - Activity 1 - Actor constellation (Map of actors)
- (20 min) - Activity 2 - Design Thinking (solutions)
- (5 min) - Presentation and debate
- (1 min) - Invitation to complete surveys.

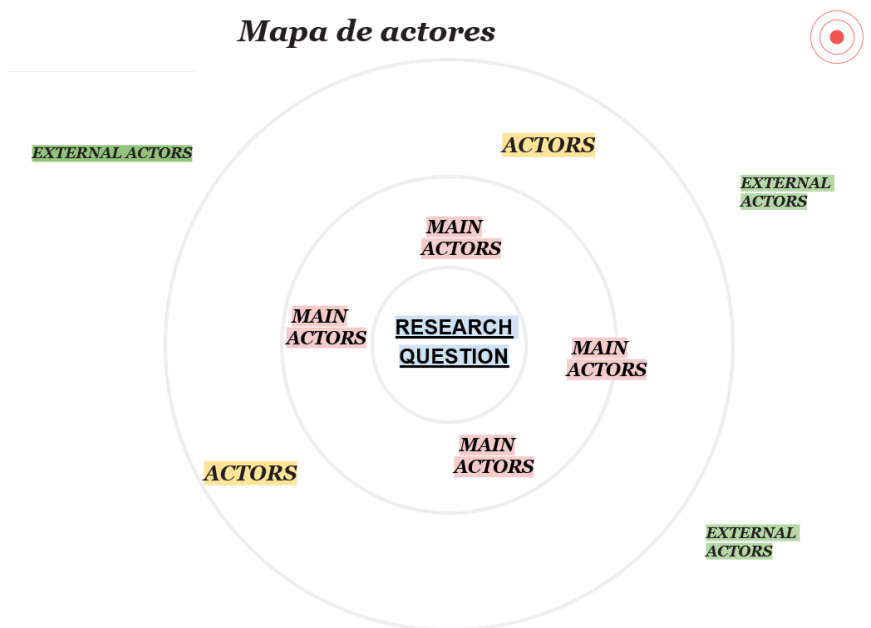
Templates:

Activity 01: Actor constellation (10 min)

An actor constellation is a role-play, in which all scientific and societal actors involved in a project are represented and positioned around the central research question. The distance from an actor to the research question, and to other actors, expresses how relevant he is in the project.

- 1) The project leader writes the project's overall research question on a label.
- 2) The moderator looks for participants to play the actors.
- 3) The project leader places the research question in the middle of the room and positions the actors around the question.
- 4) Reaction to the constellation when the actors are in their respective places.

Mapa de actores



Activity 02: Design Thinking (20 min)

Stage 1: Empathize—Empathy map

E-02

Mapa de empatía

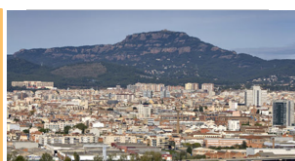
MAPA DE EMPATÍA

LO QUE DICEN

LO QUE PIENSAN

ARQUETIPO

FOTO / ILUSTRACIÓN



LO QUE HACEN

LO QUE SIENTEN

¿QUIÉN ES?

Población de Terrassa

ASPIRACIONES Y CONCLUSIONES

Stage 2: Define—Challenge redefinition

C-01

Definición del reto

¿CÓMO PODRÍAMOS...

RETO

- ESCRIBIR EL RETO-

Ejemplo: Maneras que la comunidad participe en la formación de indicadores para la transparencia de la gestión pública del agua

HAZLA MÁS ESPECÍFICA

Stage 3: Ideate—Brainstorm

C-02

Lluvia de ideas

Stage 4: Prototype—Final solutions and prototype creation

SOLUCIÓN

SOLUCIÓN O SOLUCIONES MÁS VIABLES

NOMBRE

•

QUÉ ES

•

CÓMO FUNCIONA

•

•

Stage 5: Test—Online debate

E-01

Creación del prototipo

IDEAS - BOCETOS - IMAGEN

•

POPULATION SURVEY

Here we present the population survey proposal.

SURVEY: TERRASSA PROJECT

Gender *

☐ Female

☐ Male

☐ Other

Age range *

☐ 20-30 years

☐ 30 - 60 years

☐ 60 or more

Zip Code *

Text d'una resposta breu

Are you interested in Terrasa's water management? *

☐ Yes

☐ No

Do you know how water management works in Terrassa? *

☐ Yes

☐ No

Do you know how water management works in Terrassa? *

- ☐ Yes
- ☐ No

...

Do you know whether water management in Terrassa is public, private or a combination of both? *

- ☐ Yes, it's public
- ☐ Yes, it's private
- ☐ Yes, it's public and private
- ☐ N/A

...

What do you think is the best way to manage water in Terrassa? *

- ☐ Public
- ☐ Private
- ☐ Public and Private
- ☐ Altres...

Is there a clear and effective mechanism in place at Taigua for citizen attention, suggestions, complaints and requests for information? *

- ☐ Yes
- ☐ No
- ☐ N/A



⋮

If so, could you please indicate what type of mechanism it is?

☐ Telephone

☐ Email

☐ Previous appointment

☐ Mobile app

☐ Altres...

Do you have available data on annual water consumption in Terrassa? *

☐ Yes

☐ No

☐ N/A

If so, do you consider this data useful to improve your consumption habits?

☐ Yes

☐ No

☐ I don't want to improve my consumption habits

⋮

Would you be more interested in: how the water quality compares to other cities in Spain or general statistics about Terrassa water quality? *

☐ Comparing with other cities

☐ General statistics

Mark the area you think is most important for the management of water in Terrassa (You can mark more than two) *

- ☐ Water management transparency
- ☐ Citizen participation
- ☐ Quality of the service
- ☐ Ensure access to safe drinking water for the entire population.
- ☐ Altres...

Which goals do you consider to be the highest priority to be solved in order to have an adequate water management? (You can tick more than one option or add another objective) *

- ☐ Access to adequate and equitable sanitation and hygiene services for all
- ☐ High level of transparency between the population and the professionals in charge of its management.
- ☐ Reducing water pollution and eliminating discharges of poorly treated wastewater
- ☐ Efficient use of water resources
- ☐ Implementing sustainable water resources management
- ☐ Involvement of local communities in improving water management
- ☐ Carrying out environmental awareness-raising activities
- ☐ To make the hydrological plan known to the public.

EXPERTS SURVEY

Survey for a project to select indicators for improving water management in Terrassa.

SURVEY: TERRASSA PROJECT

1. From the stakeholder category below, please select the one that represents you best *

- ☐ Government official
- ☐ Civil society
- ☐ Private sector
- ☐ Academic
- ☐ Development agency
- ☐ Altres...

2. Please indicate your experience related to water indicators *

- ☐ Up to 3 years
- ☐ 4 to 6 years
- ☐ More than 7 years
- ☐ None

3. Do you have access to the Terrassa hydrological plan, as well as the programme of measures, budget and implementation schedule? *

- ☐ Yes
- ☐ No
- ☐ I didn't know of its existence
- ☐ Altres...

4. Do you have information about the water footprint of Terrassa? *

- ☐ Yes
- ☐ No
- ☐ N/A

5. Do you have access to Terrassa's flood risk management plans? *

- ☐ Yes
- ☐ No
- ☐ N/A

6. On the scale to 1-5, how electronically accessible are their procedures and forms for administrative procedures? *

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. On a scale from 1-5, how transparent is Taigua regarding new plans and projects, investments, funds, and salaries? *

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. On a scale from 1-5, how transparent is Taigua regarding new plans and projects, investments, funds, and salaries? *

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

8. On the scale of 1-5 how clear is the protocols, and information in maintaining access of water for households that struggle with maintaining payments. *

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

9. On the scale of 1 - 5 to how negatively would the lack of transparency affect the future generations of the community of Terrassa. With 1 being most positive, 3 being neutral & 5 being negative. *

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

10. Would more information about Taigua on Terrassa's water usage/impact can influence an environmentally sustainable mindset from the community? *

☐ Yes

☐ No

11. If you have to choose one, in which area do you think Taigua needs to improve most as a company? *

☐ Transparency

☐ Environmental sustainability

☐ Social initiatives

☐ Citizen participation

☐ Altres...

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