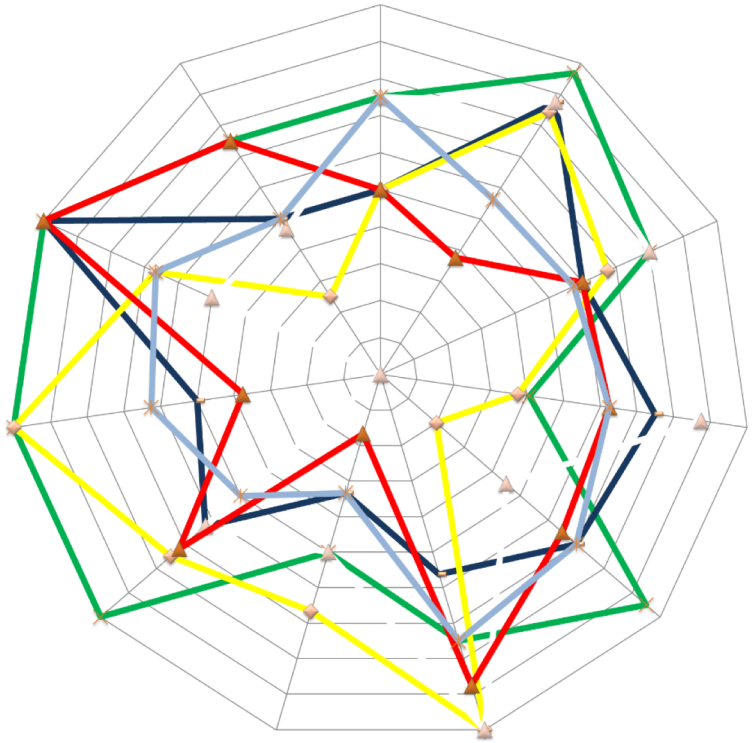
SUPSI

Sustainability Assessment in Architectural Competitions in Switzerland



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Architectural competition procedure

In Switzerland the competition procedure is described by the specific **SIA 142 "Regulation of architecture and engineering competitions".**

Although the procedure is dedicated to find the best quality projects, there are no specific references to sustainable development (SD) in its recommendations. This is delegated to the involved actors, above all to the jury, the client or the experts.

The regulation, for example, defines the composition of the jury, only by differentiating jury members between professional and non-professional subjects and fixing that the majority has to be represented by professionals.

In this procedure, the few instruments available to stakeholders to guarantee the inclusion of SD criteria are:

- the selection of the jury
- the project assessment by a team of experts in SD
- the requirements defined in the competition program
- the sensibility of the competition coordinator.

Sustainable development assessment tools

The SIA proposes a documentation with a methodology to assess sustainability, namely

- **SIA 112/1** - Sustainable Building
- **SNARC** (System to assess environmental sustainability in architectural projects)

Moreover, contracting authorities may use the

- **Albatros tool,** a methodology that incorporates the criteria of SD in the strategic planning of public buildings

V	V^+	V = 100%
	V°	$V \geq 66\% \wedge R=0 \wedge N=0$
	V^-	$66\% > V \geq 50\% \wedge R=0 \wedge N=0$
J	J^+	$33\% < V < 50\% \wedge R=0 \wedge N=0$
	J°	$(V < 33\% \wedge R=0 \wedge N=0) \vee (V \geq 66\% \wedge R \leq 33\% \wedge N=0)$
	J^-	$(R \leq 33\% \wedge N=0) \vee (V \geq 50\% \wedge R \leq 50\% \wedge N=0)$
R	R^+	$(33\% < R \leq 50\% \wedge N=0) \vee (50\% < R \wedge V \geq 33\% \wedge N=0)$
	R°	$50\% < R \leq 66\% \wedge N=0$
	R^-	$(R > 66\%)$
N	N	N>33%

In recent years SNARC and Albatros has been partly replaced by:

- **SméO / Sustainable Neighbourhood by SméO,** a project promoted by the two Swiss Federal Offices of Energy SFOE and Territorial Development ARE

Competition tender

The involved stakeholder has the chance to influence, positively or negatively, the process of SD in the architectural competition.

Among them the clients/promoters have the main and most important role. In fact, it is up to them to define the composition of the jury and the experts.

As assistance they have a coordinator which has the role to follow the SIA 142 Regulation.

Afterwards, promoter and jury define the criteria of judgment in the competition tender and select the experts. This means that in the initial phase of the architectural competition, key decisions are taken by the promoter. Those decisions significantly influence the SD of the project.

The preparatory phase of the competition is the right moment to integrate the principles of SD in the tender, that will be held throughout the process.

Namely it is necessary to clearly set the evaluation criteria. The selection of indicators is essentially based on the SméO instrument

Case studies

In the lasts years, the Institute for Applied Sustainability to the Built Environment (ISAAC) of the University of Applied Sciences of southern Switzerland (SUPSI) had the opportunity to assess the sustainability of some architectural competitions in Canton Ticino.

Process:

- DECISION of the client to assess SD in the architectural competition
- SELECTION of the jury and expert. Interdisciplinary team to assess SD
- PREPARATION of competition tender
  - SD REPORT made from each project team made on a common template (using a selection of assessment criteria, which are set for a preliminary phase of project, based on the SméO instrument)
  - DECISION has to be visible on the architectural table (plan, …)
- ANALYSIS of the projects by the interdisciplinary team
- REPRESENTATION / RESTITUTION of results to the jury
- CHOICE of the competition winner by the jury

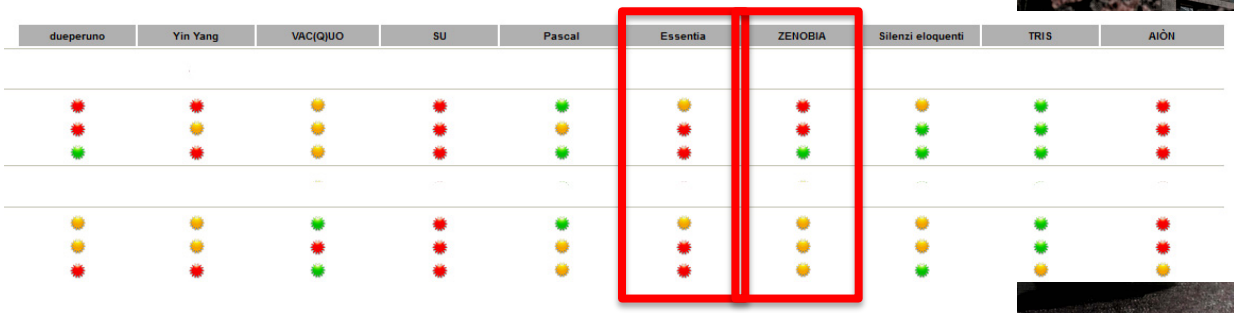
Case studies

New Campus USI-SUPSI in Viganello

12 projects in the 2nd competition phase

Winner of competition = third last placed in SD assessment

Second placed of comp. = fifth placed in SD

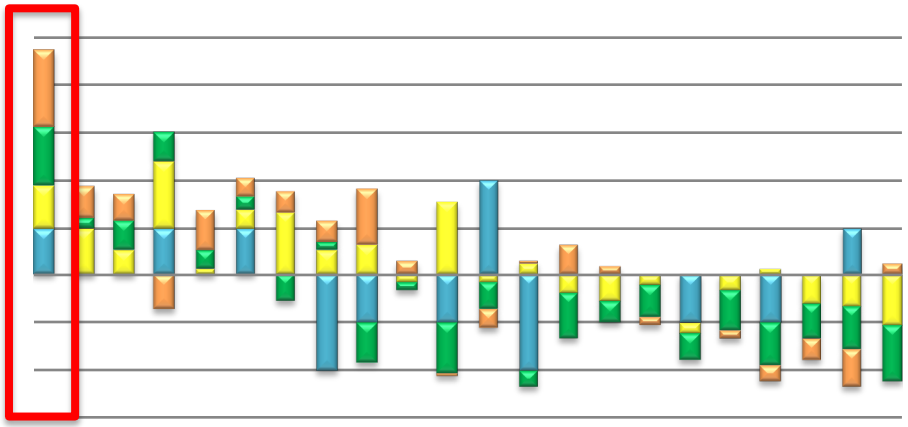


Case studies

New Campus SUPSI in Mendrisio

22 projects in the
2nd competition phase

Winner of competition
= first placed in SD assessment

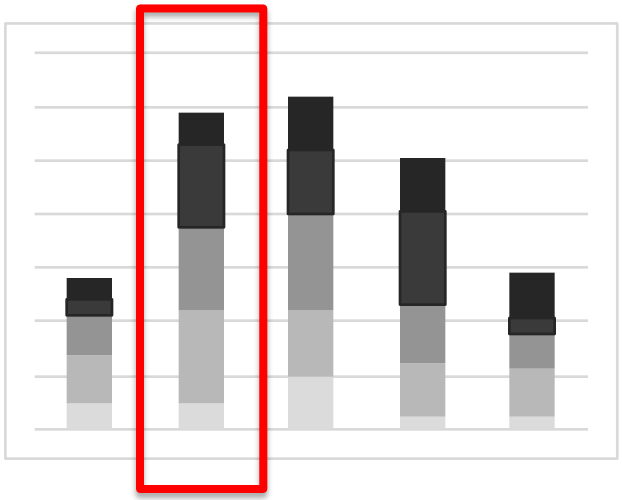


Case studies

New Retirement home in Coldrerio

5 projects in the 2nd competition phase

Winner of competition = second placed in SD assessment

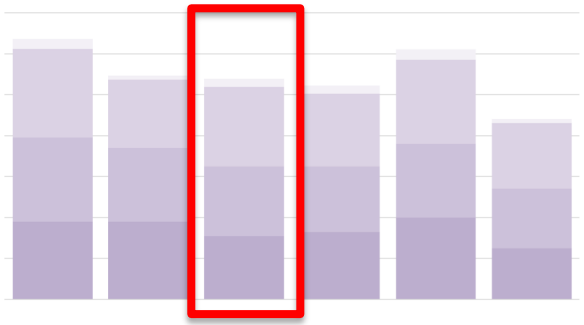


Case studies

New Kindergarden in Gerra Cugnasco

6 projects in the 2nd competition phase

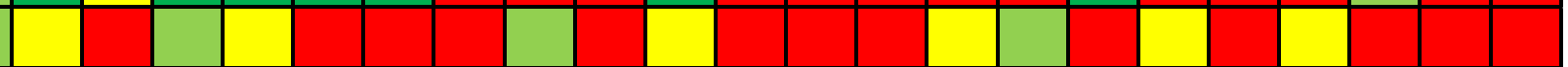
Winner of competition = fourth placed in SD assessment



Results

At the end of each evaluation process, it is necessary to explore how to deliver results in ways that are easy to understand to all the possible actors, even non-experts.

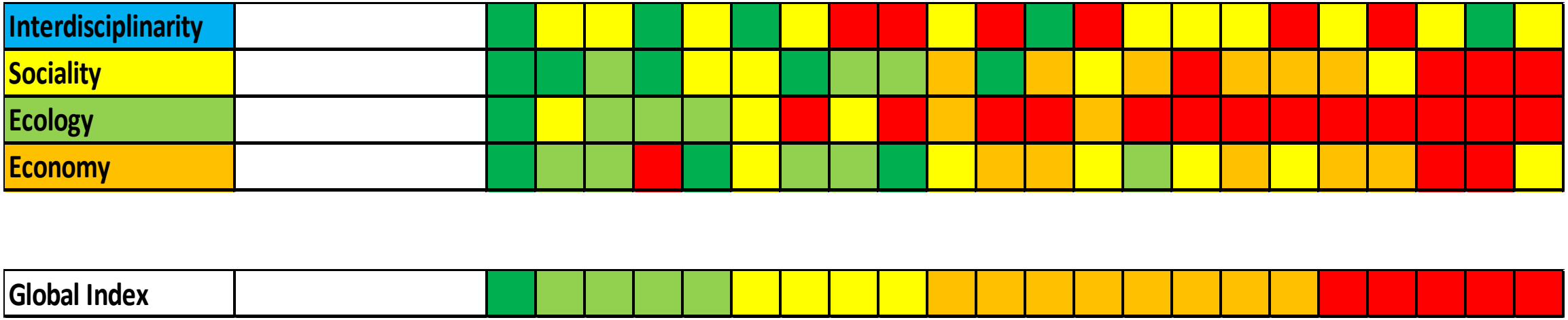
Here an example from the architectural competition of the Campus SUPSI in Mendrisio: weaknesses and strengths of each project are visible here.

Interdisciplinarity	Specialists	
Sociality	Public spaces	
	Comfort and security	
	Mobility	
Ecology	Resources	
	Natur	
	Ecology	
	Standard	
Economy	Investment	
	Management	
	Global costs	

Results

Condensing the index into the domains of SD, the weaknesses and strengths of each project are still visible.

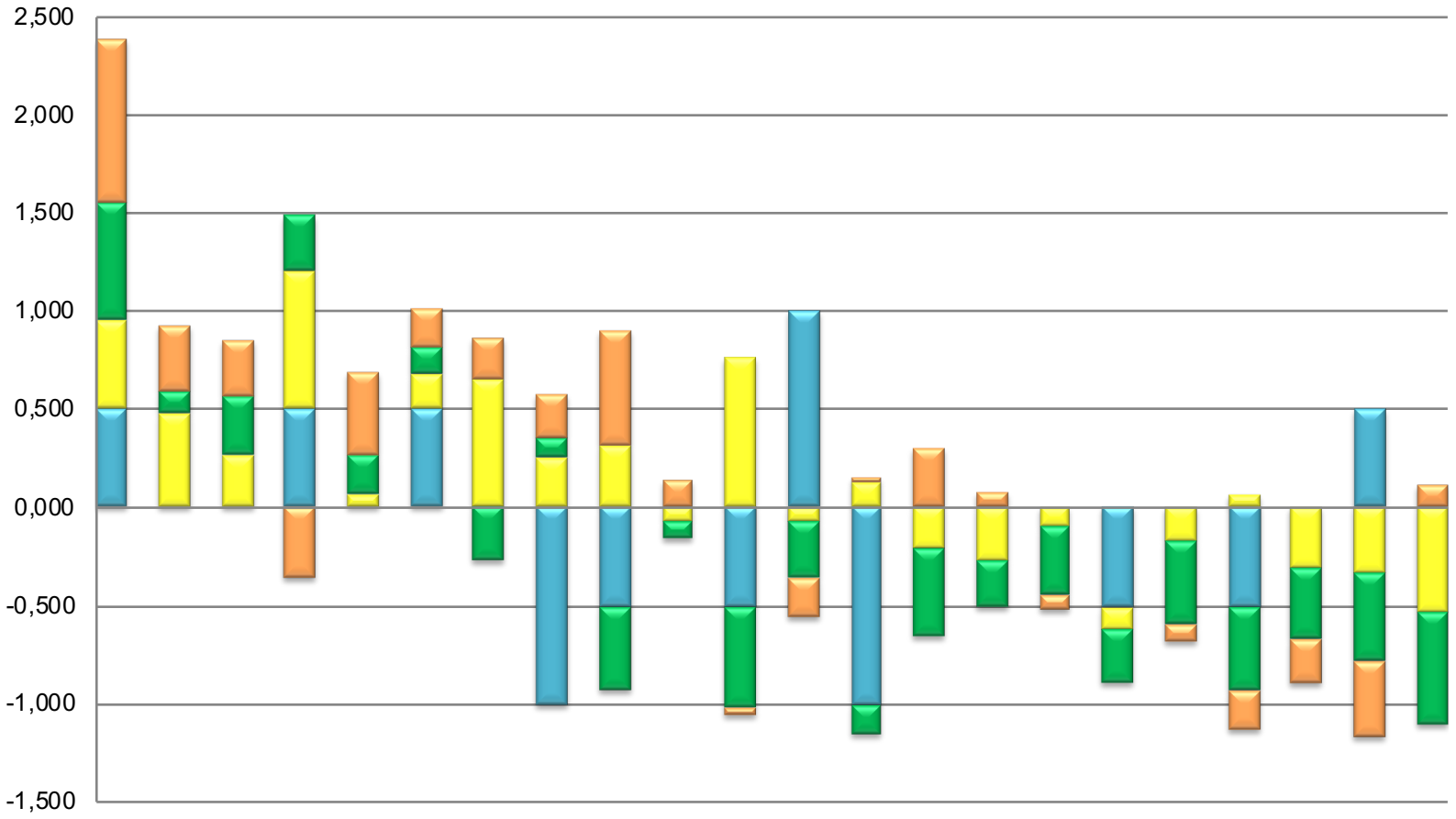
The fast option is to present the results of aggregate logic with the global index, but this does not express the full complexity of a score.



Results

Another possibility of representation is the bar chart. The figure shows again the comparison between the 22 projects of the SUPSI campus in Mendrisio.

It easily allows everybody to see the peculiarities of every project: on one hand, the height above 0 of the cumulative bars identify the strength of each project, on the other hand, the bars below 0 identify the weaknesses.

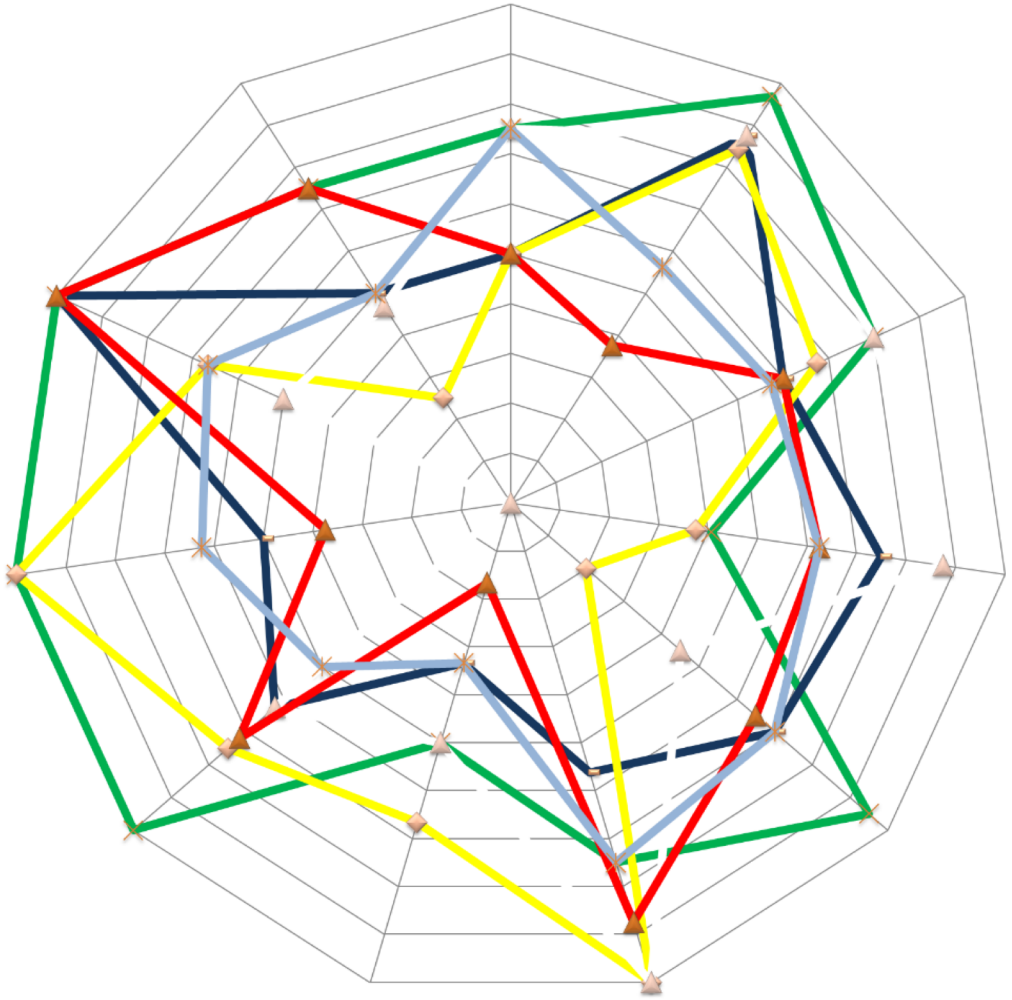


Results

A further representation is the spider web diagram.

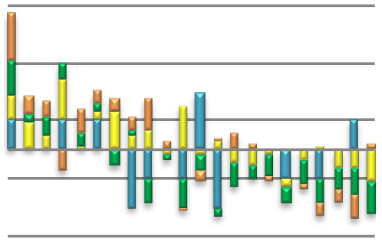
This type of illustration is easy to understand, as long as it displays a rather limited number of projects.

The figure shows the six projects of the SUPSI campus in Mendrisio, which have received the best sustainability indices. Reading is difficult in this representation.

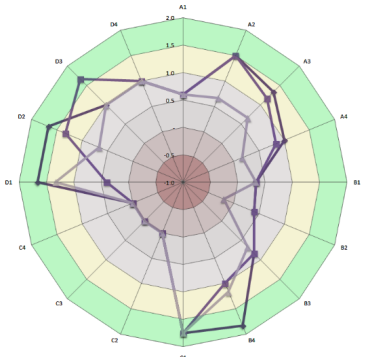


Conclusions

Thanks to the experience accumulated in the four architectural competitions, it was possible to identify the **representation of the results** that better visualize the facets of the assessment of SD:



- The representation that allows in a quick way to highlight the strengths and weaknesses of a project is the bar chart. We therefore believe that this is the right way to represent the results of a sustainability assessment with more projects;



- The spider web diagram is useful to present a single project rather than comparing many projects. But it has the advantage to better follow the development of a single project in its realisation;

- The global index is of great interest to the client because it explicitly expresses a ranking, but it does not allow for any comparison.

Conclusions

New approaches towards more sustainability in architectural competitions

- Adaptation of legislation: introduction of explicit paragraphs on SD in the SIA Recommendation 142;
- Coordinators' training - drafting of the tender: if the coordinator has a solid foundation in SD, he can make sure that the tenders include the underlying concepts of sustainability as one of the main criteria of choice. The training of coordinators could be implemented by the order of architects;
- Composition of the jury: to include sustainability in those processes, it would be desirable a composition of the jury 1/3 professional (Architect, urbanist), 1/3 SD-professionals, 1/3 non-professional;
- Role of the experts of SD: actually, the experts of SD only have advisory function without voting rights. In this way the proposal is to include them in the jury (1/3 of the jurors).