



INTERNATIONAL
UNION FOR
CONSERVATION OF
NATURE

**RIO DOCE PANEL
MONITORING,
EVALUATION AND
LEARNING REPORT 2022**

INTERNATIONAL
UNION FOR
CONSERVATION OF
NATURE

CREDITS

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PART I:

2022 Rio Doce Panel's Activities

The year 2022 marked the final year of the Rio Doce Panel (RDP), an Independent Scientific Technical Advisory Panel (ISTAP) formed by the International Union of Conservation of Nature (IUCN) to provide scientific advice for the Renova Foundation (RF) in the Rio Doce reparation context. After four years since its creation, the RDP entered 2022 with five Issue Papers and four Thematic Reports and a long relationship with the Renova Foundation and other stakeholders in the reparation process.

Going through its closure process, the RDP made some changes in its final year. First, after a request by the RF, the RDP decided to change its modus operandi before its last Thematic Report and build a common framework with Renova's technician to assess marine and coastal impacts. After eight workshops and an extended writing and review process, the last Thematic Report, TR05, was published in late November.

As the fifth and final Monitoring, Evaluation and Learning (MEL) Report of the RPD project, this edition tries to take a different take on the RDP's activities. This first part tries to analyse the documents done by the RDP in the last year, focusing specifically on TR05's launch, publication, and reception by the audience. It also briefly overviews the other documents and deep dives into the three significant events the RDP held in 2022: an impact assessment webinar, the publication's launch, and joint events with Renova. Furthermore, it also explores the feedback Renova provided during this year for TR03 and TR04.

SECTION I - RDP MAIN PRODUCTS

I. Thematic Report 05

After five years of relationship, producing five Issue Papers and four Thematic Reports, with thirty-three recommendations made, the Renova Foundation asked the RDP to change its modus operandi and assist them in a contentious topic.

In 2018, Renova hired specialists from several public universities, mainly from Espírito Santo, to comply with the Aquatic Biodiversity Monitoring Program. This collaboration began with the researchers, jointly named the Rio Doce Mar Network (Rede Rio Doce Mar, RRDM), in September 2018, and the first results started to be published in October 2019. In February 2020, both SAMARCO and the Renova Foundation pointed out methodological inconsistencies in the studies created by the RRDM for the Interfederative Committee (CIF) Technical Chamber of Biodiversity (CT-Bio) plenary and, in their replies; the researchers argued that the inconsistencies are not enough for another Report to be made. After clashes in the Technical Chambers of the CIF during the beginning of the pandemic, the Renova Foundation unilaterally cancelled the contract with the Rio Doce Mar Network in September 2020, justifying the action due to the need to complement the Report, citing technical and data failures Gross and lack of repair mechanism. This decision was reversed; the 12th court of Belo Horizonte reversed the unilateral breach of contract and determined the continuity of the relationship between Renova Foundation and Rede Rio Doce Mar.

Amidst this contentious context of conflicting technical visions, the Renova Foundation asked the RDP, with its expertise, to produce a Thematic Report proposing a scientific methodology for monitoring aquatic biodiversity, encouraging scientific production to be able to determine levels of certainty in the relationships of causes of the impacts arising from the dam failure. Building up on the same theme as Issue Paper 4, which the RF received well, TR05 was the last of the ten technical documents produced by the RDP to be launched (the RDP "Legacy Report" was launched in April 2023).

To build this common methodology, RDP members met with Renova technicians and promoted eight workshops from the beginning of 2022 until June. Based on the exchange of experiences and the sharing of specialised knowledge, the eight workshops aimed to build a shared vision between Renova and the RDP that could help construct the fifth Thematic Report.

This format was highly innovative in the relationship between IUCN and Renova since, in the other papers, the RF would typically have access to the content of the documents only in its later drafts or when published. While this was taken as a necessity to keep the ISTAP independence and not to be influenced by Renova in its scientific products, this also produced a loss of relevance. All Thematic Reports passed through multiple rounds of writing, rewriting, editorial review and peer-review, time-consuming processes before publication. Corroborating one of the External Evaluation arguments, interviewed Renova staff members told the IUCN Secretariat that RDP's finding might lose relevance in a complex and fast-paced reparation context because of this lengthy scientific timing.



This report will analyse Thematic Report 5 under two different lenses. First, IUCN Secretariat designed a questionnaire with three axes of questions for Renova participants. Since the survey gathered a low number of responses (n=7), it was complemented with two additional interviews conducted by the IUCN Secretariat with Renova staff members. In another stage, this report will also analyse the impact and importance of TR05 with another survey taken by participants of the document's launch.

The first axis of statements focused on the impact of the workshop. Respondents were asked to rate from a scale of 1 to 5, with five being the maximum level of agreement, how much they agreed with the following statements:



- i. The RDP's new working model provided tools to help implement the impact evaluation recommendations (building up on Issue Paper 4).
- ii. The work was built collectively (with sufficient and equal engagement between participants and RDP members).
- iii. The work offered innovative approaches, going beyond what had been proposed in existing documents (such as the methodology developed by RRDM/FEST and the RDP's reports).
- iv. The Renova Foundation and its consultants have the means to put the proposed methodological approach into practice.
- v. The interaction format with the RDP allowed for greater clarity and practical/feasible recommendations.

Tablesheet 1 describes the qualitative results for questions I to V:

Tablesheet 1 – Feedback to TR05’s workshop questionnaire – Axis I

STATEMENT	SCORE
I	4.7
II	4.4
III	5.0
IV	4.4
V	4.6

The high acceptance of question III indicates that the participants found the new relationship innovative and, along with answers for questions I and V, indicate that this new format of collaboration promoted more helpful and adequate exchanges between the RF and the RDP. The slightly lower scores for statements II and IV indicate two aspects with room for improvement: that the construction of the methodology could have been more collaborative and that there is a concern within the RF about the implementation of the methodology put in place.

Of the seven respondents, only four provided deeper insights. Everyone praised the webinar and found it helpful, thanking the RDP. Other praise referred to the format of collective construction and the methodological and conceptual advances achieved by the RDP. Two responses had a common concern, stating that the methodology implementation is more difficult due to the large volume of information and conflicts.

The second axis of questions, related to the workshop format, involved a slightly different approach. For each statement, respondents had to choose between the options "Completely Disagree", "Partially Disagree", "Neither Agree nor Disagree", "Partially Agree", and "Completely Agree". The five statements respondents had to rate were:

- i)The workshops had adequate time for exposition/debate/clarification for questions.
- ii)IUCN Secretariat staff helped organise and facilitate the workshop.
- iii) The eight workshops were sufficient to address the required topics.
- iv)RDP members were helpful and established a good relationship with Renova Foundation professionals.
- v)Any doubt was clarified during the workshop.

Tablesheet 2 – Feedback to TR05’s workshop questionnaire – Axis II

STATEMENT	SCORE
I	4.6
II	4.6
III	4.0
IV	5.0
V	4.2

This axis focused on the workshop's format; its results could have been more favourable. The relationship between the RDP and the Renova Foundation was praised, and both the workshop time and the organisation of the IUCN technical team were valued. Both statements III and V, more related to the ability to expose all the necessary themes within the methodology, received lower scores, indicating that the technicians preferred additional workshops. Interviews with Renova staff also pointed out that the gap between workshops provoked a certain discontinuity. Participants often needed clarification when agreed-upon activities in previous workshops were not mentioned in future sections.

The third axis of questions, which had the same type of answer as the questions above, was related to the quality of the workshop. Respondents should rate the following statements:

- i) The approach to structure the identification and characterisation of impacts was clear.
- ii) The workshops contributed to establishing the next steps for implementing the methodological approach.
- iii) The format of working together in the workshops was more relevant to my work than previous RDP recommendations.
- iv) The examples given were adequate to the Rio Doce Basin reparation context.
- v) The content discussed in the workshop provided new debates on impact evaluation that can be developed in the future.

Tablesheet 3 – Feedback to TR05’s workshop questionnaire – Axis III

STATEMENT	SCORE
I	4.6
II	4.8
III	5.0
IV	4.6
V	4.8

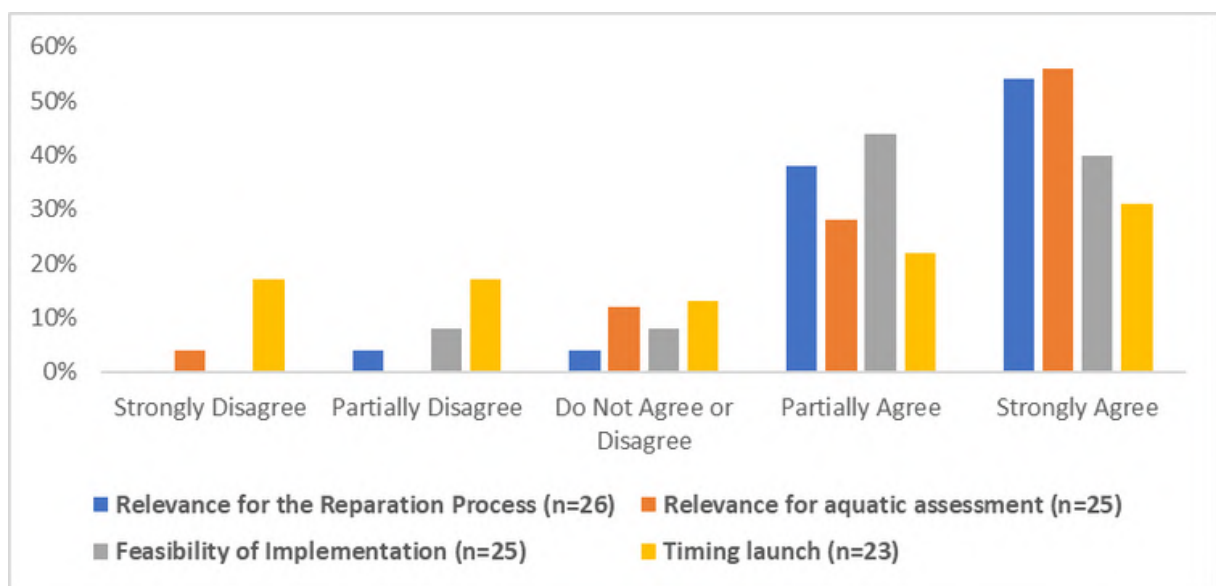
Despite the low number of more detailed responses – only five – it is possible to categorise the five statements into three categories: the unanimity of the third statement indicates that the Renova Foundation received well the change in the RDP's modus operandi; the second and fifth statement had a high reception, of 4.8, indicating that the workshops helped in the process of creating the methodological approach and raised new steps on how to proceed; finally, the first and fourth statements, with a slightly lower but still high score, indicate that the approach to characterising the impacts was also straightforward, but less explicit for some people and that the examples were appropriate to the context of Rio Doce.

In addition to this early questionnaire, another survey was taken during TR05's launch. With higher participation of around 26 respondents, the survey analysis is divided into two different parts in this report, with the first part covered in the Event sub-section and the latter part addressing TR05's reception, relevance, implementation, and timing, which will be addressed now. Here, the respondents were asked to classify four statements:

- (i) "Based on the presentation, TR05 is relevant for the reparation process".
- (ii) "Based on the presentation, TR05 is relevant for the aquatic biodiversity monitoring and impact assessment";
- (iii) "Based on the presentation, implementation of this methodology is feasible";
- (iv) "The timing of TR05's launch is ideal".

Respondents were asked to classify these statements under the following categories: "Strongly Disagree", "Partially Disagree", "Do not agree or disagree", "Partially Agree", "Strongly Agree", and "I don't know". Graph 1 shows the overall distribution of answers, while in an average analysis, question 1 gets a 0.86 mark out of 1, question 2 receives a 0.83 score, question 3 gets a 0.79 score, and question 4 receives a 0.58 score.

Graph 1 - Response to IUCN's Questionnaire's Statements





Based on the answers, TR05 was perceived as highly relevant for the reparation process and received an average score of 86%. The second question, related to the TR05's relevance for the aquatic biodiversity and monitoring assessment, received an average score of 83%. There was only one "Partially Disagree" and one "Do not Agree or Disagree" to the first question, and one "Strongly Disagree" and three "Do not Agree or Disagree" to the second question.

Question 3 regarded the feasibility of the TR05 implementation and received a 0.79-averaged weighted score. When analysing the individual responses, an interesting finding emerges. Despite being less convinced of the study's relevance, respondents from IEMA, UFES, and Rede Rio Doce Mar are less likely to respond that TR05's framework is less directly feasible to operate. In fact, out of the two "Partially Disagree" and two "Do not Agree or Disagree", three of them were from Renova Foundation and Vale's respondents, which points out that the private sector might be less convinced of its implementation feasibility than academics and technical staff.

Finally, question 4, which regards the timing of TR05's launch, received the lowest results, with only a 0.58 score. Out of 23 respondents to this question, three of them claimed that they "Strongly Disagree", three claimed that they "Partially Disagree", and four "Do not Agree or Disagree" when asked if TR05's timing launch was ideal.

Those who disagree with the statement are scattered in various institutions, such as Renova Foundation, universities and public agencies. Of the seven respondents that claimed that they "Strongly Agree" that the timing of TR05's launch was ideal, five were linked to the RDP, Renova Foundation, or Vale. One respondent that marked "Strongly Disagree," wrote:

 *Unfortunately, the delay [to respond] AIA's [Espírito Santo water agency] summoning to subsidise the reparation process deeply reduces the capacity to influence the decision-making process".* 

Although there were no questions about the organisation of the webinar, IUCN Secretariat received three commentaries from members of Rede Rio Doce Mar and IEMA, feeling that the event could have provided more time for its Q&A section. Additionally, comments criticised the presentation format and said there should be an open floor for discussion rather than merely a chat box for questions. One member of IEMA commented that:



I understand the difficulties, but having an open discussion space is important to raise technical doubts about the issues presented. Perhaps, it would have been better to open a link beforehand with the document and to raise some questions in advance. Additionally, in the RDP's presentation, to make IUCN's impartiality more believable, it would have been important that Renova Foundation would abstain. [...] In such a technical space, their communication work becomes an unnecessary waste of time for the spectator. Please understand that this is not just another critique of Renova Foundation, but rather a feeling that time could have been better spent in an objective and technical discussion.



Analysis of the two surveys regarding the workshops and the issue papers provides a complete panorama of the reception of TR05. ReRenova's staff members heavily praised the format of the workshops, which provided a new modus operandi and the collaborative construction of the framework between the RF and the RDP.

The relevance of TR05 was highly praised, and workshop attendees' and stakeholders' responses converged that this framework would serve as the basis for Renova's impact assessment. Nevertheless, the Thematic Report received mixed reviews from researchers from Rede Rio Doce Mar and other research institutes from Espírito Santo. Possibly, these researchers interpreted TR05's theme and framework only as an institutional response to a contentious technical divergence between the RF and RRDM. Further work to increase TR05's acceptance between these institutions should be advised in this case.

The implementation feasibility of TR05 received divergent feedback. While several stakeholders from academia and the government claimed the report promoted a feasible framework, the RF provided mixed responses. Staff members felt that TR05's framework was implementable, but executives needed more convincing. Before TR05's launch, IUCN had a meeting with Renova staff members to disclose TR05's main aspects and received a response from the Fundação Brasileira de Desenvolvimento Sustentável (FBDS)'s members suggested that TR05's framework would benefit from some minor changes to increase implementation, such as highly-specialised areas that do not have many studies (e.g., crustacean health assessment).

Various stakeholders criticised the timing of TR05's launch, and some respondents claimed that the document needed to include the timing of influencing the decision-making process. Nevertheless, an interview with a Renova staff member claimed that since Renova suggested the collaborative workshop format to allow earlier knowledge uptake, it mitigated the timing concern, allowing the RF to implement the recommendations much earlier than they did in other documents.

II. External Products

IUCN Secretariat commissioned two other products in 2022. The External Evaluation, a MEL product that aimed to assess RDP's relevance, effectiveness, efficiency, sustainability, adaptability and impact during its work tenure, identify, and consolidate best practices and lessons learned from the RDP. The External Evaluation produced eight recommendations, partially accepted by IUCN, the RDP, and the Renova Foundation.

The Stories of Influence (SoI) is a recurring type of document that IUCN uses to outline the longer-run influence and impact of the ISTAPs. Its focus is to communicate the many stories surrounding the RDP, showing how the RDP affected lives and those that it contacted.

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Throughout the last five years, the MEL strategy aimed to assess the impacts and the outcomes of the RDP's work and understand their ramifications. These influences, recorded on the Influence Log, were used to source this report, and they include:

- **Refocusing on the long-term** – Trying to establish a broader long-term action plan for the basin instead of focusing on day-to-day operations.
- **Building a comprehensive picture** – Creating the basin for a comprehensive restoration plan and impact assessment led to Renova's creation of the Impact Curatorship.
- **Staying relevant for a second dam disaster** – Transposing the knowledge created by IUCN for Mariana to Brumadinho and influencing climate change projections there via TR02.
- **Mainstreaming Climate Change in the Basin** – Beyond Brumadinho, TR02 was also used as a source for more climate change-oriented resilience in the basin, such as CBH-Doce long-term planning to establish promoting resilience top priority.
- **Influencing beyond the Rio Doce** – Participating in creating a global tailing management standard and engaging in multiple international conferences to present the RDP's examples.

SECTION II - 2022 Events and Communication

During 2022, the Rio Doce RDP hosted three different events, which will be approached in the next section, along with further analysis of the participants. On June 20, RDP promoted a webinar related to Impact Assessment in response to Renova's demand. On November 23, the RDP launched its only document for the year, Thematic Report 5. Almost simultaneously, from November 21 to the 23, the RDP participated in the "*Conhecimento Em Pauta*" series. In the following pages, this report will provide data for each event individually and finish with a joint analysis of RDP's 2022 activities.

Unlike previous MEL Reports, this section will not analyse data points from the website's use and access because it passed through a significant reformulation at the end of the first semester, and the metrics are no longer available.

I. Webinar

On June 20, the Rio Doce Panel hosted an "Environmental Impact Assessment – Restoration of Degraded Landscapes" webinar. To raise attention to the methodology discussed in TR05 and improve its communication calendars, Renova requested the event. The RDP Chair and former IUCN president Yolanda Kakabadse provided opening remarks. The RDP member Maria Cecília Wey mediated the webinar, and former Brazilian Environmental Minister José Carlos Carvalho made a closing statement.

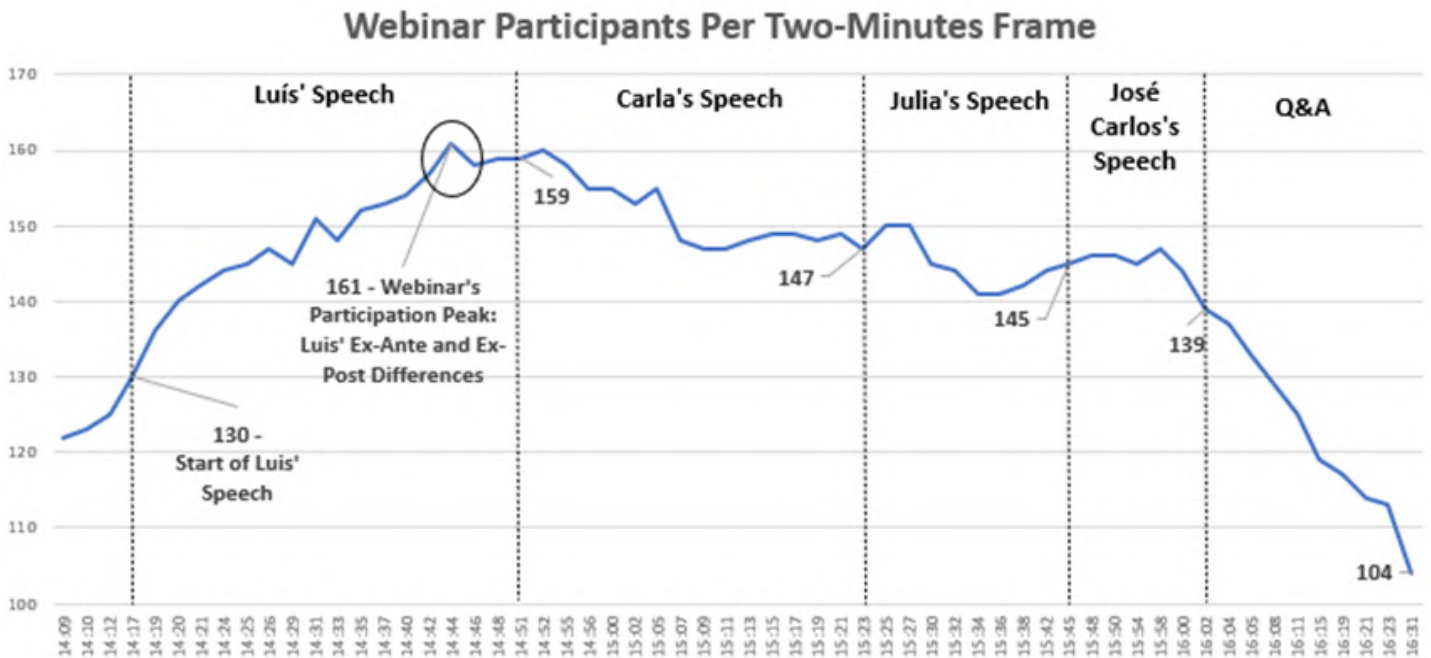
IUCN Secretariat selected three main speakers for the webinar. Professor Luís Sanchez, an RDP member, delivered a speech on how to evaluate ex ante and ex post environmental impact assessment and presented benchmark cases analogue to the Rio Doce's disaster; Professor Carla Grigoletto Duarte presented the biodiversity impact assessment methodology currently being developed for the Rio Doce case by Fundação Brasileira de Desenvolvimento Sustentável, FBDS, an organisation that she participates in; finally, Julia Baena, an ESG analyst for the World Bank in Burundi, presented international organisations' efforts to remediate degraded landscapes, using examples of countries in the Great African Lakes.



Before the beginning of the webinar, 272 people submitted their requests to attend the meeting. Nevertheless, the peak of participation had 161 participants (including the 11 people responsible for the webinar's organisation). Luis' speech produced solid numbers and attendance, reaching its peak when the professor discussed the difference between ex-ante and ex-post evaluation assessments. Carla's speech also had a good turnout, but there was a dropping in numbers around the 15:00 mark when discussing the foundations of impact assessment on the field. Her speech ended with 147 participants. Julia's speech had slight variance over time, with a small decrease around the 15:30 mark when discussing landscape erosion' in Burundi. Still, overall, there were only two participants that left during her speech. There was another significant decrease during José Carlos' speech, right before the 16:00 mark, and numbers significantly dwindled during the Q&A.

Overall, participation retention was high. A decrease in participants is associated with hour marks (15:00, 15:30, and 16:00), suggesting that people had to leave due to a scheduled appointment rather than their interest. A more systematic approach can be seen in Graph 2 below (please note that the baseline is 100 participants).

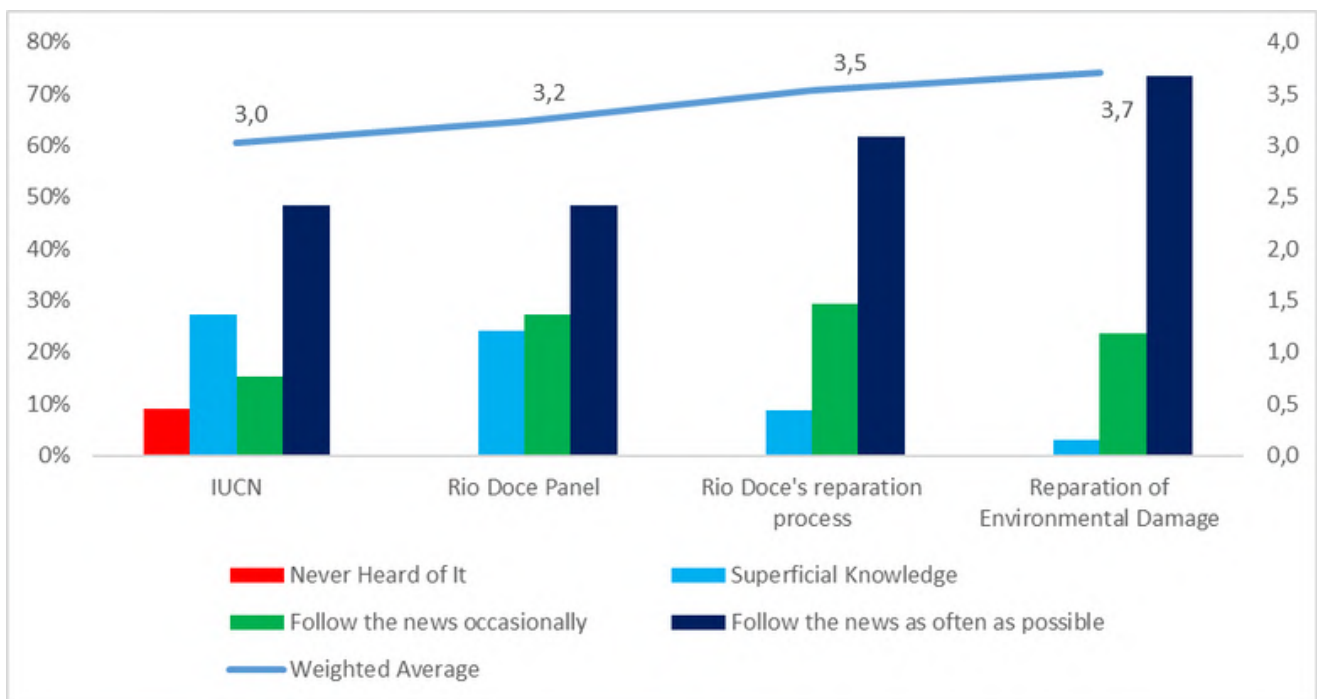
Graph 2 - Webinar Participants per Two-Minute Frame



To provide insights and engagement on the webinar audience, IUCN Secretariat fostered participation during the webinar and conducted a small survey afterwards. During the webinar, the audience could engage with the interviewees and ask them questions via Zoom chat. The Secretariat team compiled all 12 questions received. Half (6) were directed at Professor Sanchez, two at Professor Duarte and one at Ms Baena. The three remaining questions were overarching and could be responded to by any specific interviewee. Based on the people that asked the questions and the chat's comments, the webinar's audience was highly qualified, with several members of the academia, high-level environmental policymakers, and members of the mining sector suggesting that we reached a target audience.

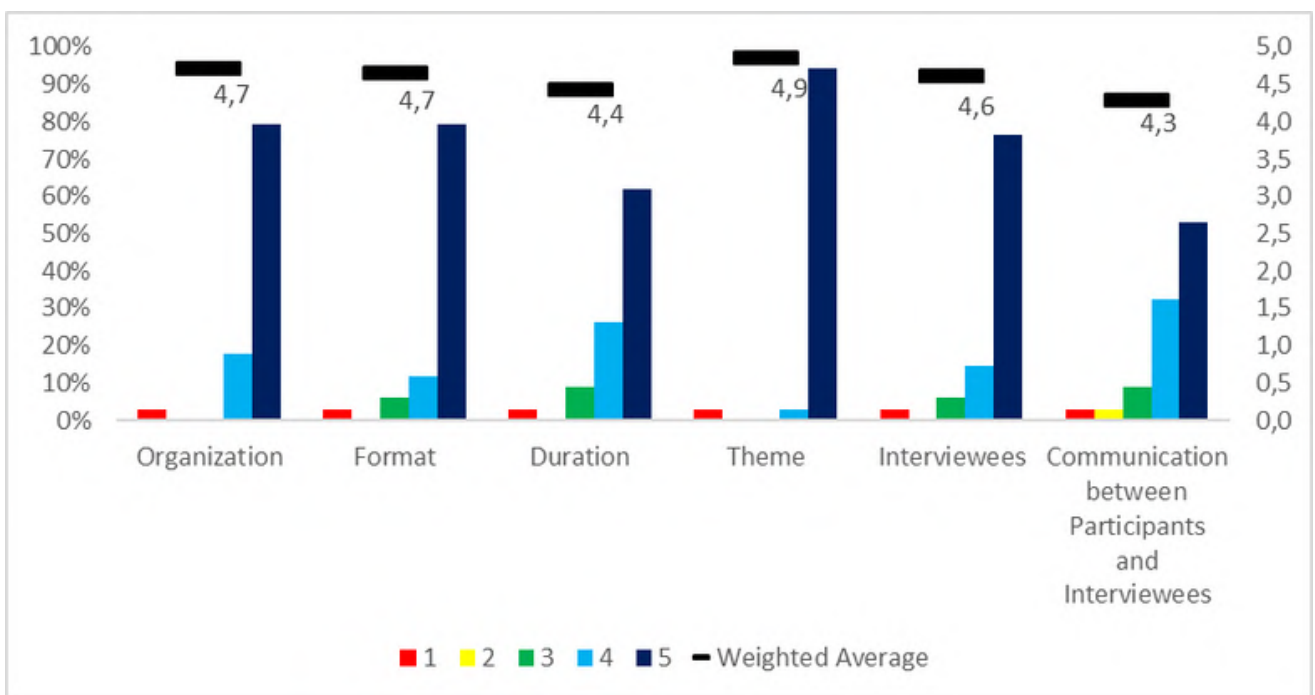
The survey had 34 respondents, which were asked about their awareness of the RDP's work, to provide feedback on the webinar, and if they would like to engage with the RDP shortly. Graph 3 below shows the public awareness of the key topics discussed by the webinar (Rio Doce Panel, Rio Doce's reparation process, and environmental reparation) along with the IUCN's awareness, with a maximum score of four. The organisation fell last in the weighted average, only reaching a 3. This result means that the webinar reached a different target audience or that IUCN is not well-known to the general Brazilian public.

Graph 3 – Public Awareness of Each Topic/Organisation



The second survey question required the participants to give a 1 to 5 rating on the following aspects of the webinar: Organisation, Format, Duration, Theme, Interviewees, and Communication between Participants and Interviewees. The latter was the most highly criticised, with a 4.3 average rating (out of 5), as shown in Graph 4 below. In the comments section (see 3c), there were suggestions that Secretariat should have used an app to manage all the questions. The webinar duration also received low marks, and there were suggestions that we should have expanded it. The theme was highly praised, suggesting a core audience hoping for more webinars in similar areas.

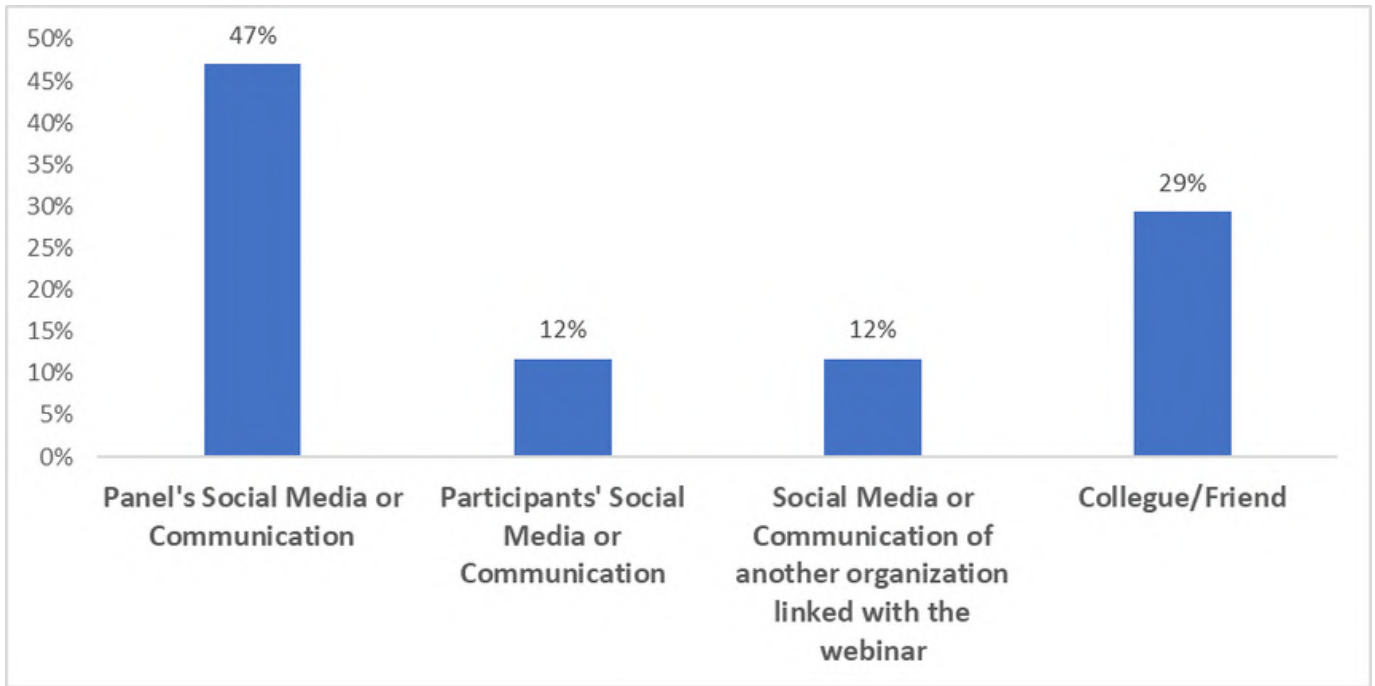
Graph 4 –Survey Scores for Public Perception on Selected Topics on the Webinar



The survey also asked for suggestions for improving forthcoming IUCN webinars and possible topics for future webinars. The most mentioned issue was nature-based solutions (NbS), with five mentions. Most of the suggestions related to this webinar were based on expanding the divulgation period, increasing the webinar's duration, and improving time management. There were also significant comments about bringing representatives from the affected communities and using better question-and-answer tools during the seminar.

Regarding communication tools, graph five below shows that most of the public reached us via RDP's Social Media (47%). Indication by a friend or a colleague also was responsible for a significant percentage of the attendance (29%).

Graph 5 – Attendance by Communication Tool



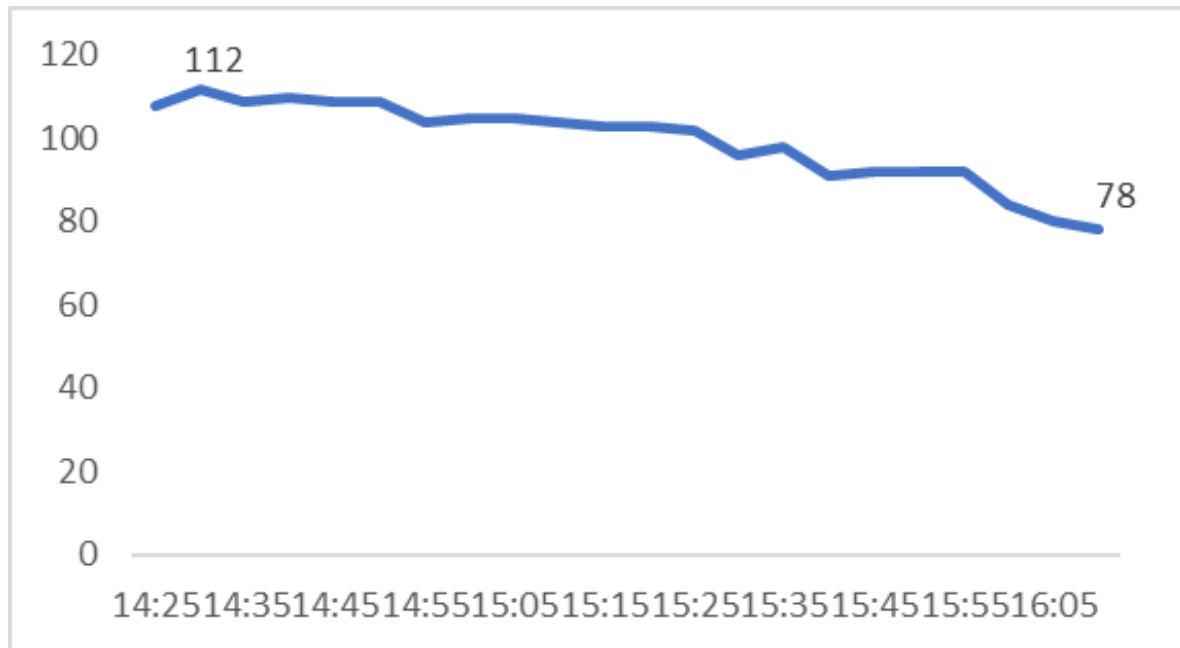
II. TR05 Launch Event

The following is a report about the Rio Doce RDP’s TR05 launch, the last Thematic Report and the most important RDP product of 2022 based on an analysis of the attendees and a survey questionnaire created and analysed in the Survey Monkey tool.

As part of a substantial communication strategy, 186 people submitted their request to attend the meeting, ranging from stakeholders that closely observed the RDP’s work to other stakeholders not involved in the reparation process. The event was hosted simultaneously by our Zoom meeting, which received the most participants, and a YouTube broadcast with peak participation of nine people at a time (54 unique users). During the peak of participation, the seminar had 112 participants (103 in Zoom and nine on YouTube, counting speakers), as shown in Graph 6. Coincidentally, 112 was also the number of non-speaker participants who attended the Zoom meeting at any time.



Graph 6 – Webinar Participants per Five-Minute Frame

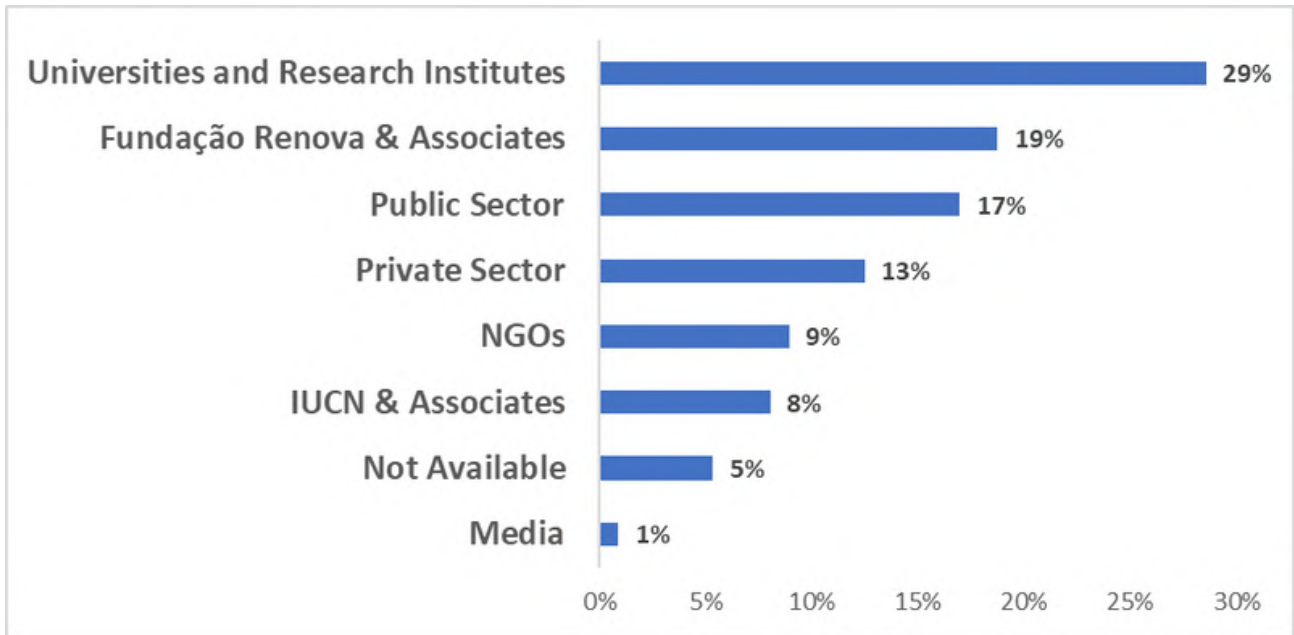


a. Institutions represented

The analysis of the e-mails of the participants enabled us to understand the institutions present in TR05's launch. As demonstrated in Graph 7, a slight majority was related to universities and research institutes, the majority in teaching positions, with undergraduate students represented in small numbers. When looking at institutions, as demonstrated in Graph 3, an overall plurality of participants is from universities from the affected states, such as IFES, UFES and UFMG. Nevertheless, there was also a significant number of participants from universities from non-affected areas, such as those from São Paulo (USP and UNESP), Rio de Janeiro (UFRJ), and a surprising number of participants from Southern Brazil, such as USC, UFRGS, UFPEL, and UNIVATES. Participants from non-Brazilian universities include the University of Mainz in Germany and the University of Saskatchewan, a land-locked Canadian study.

Likewise, most public sector participants were from the affected area, ranging from statewide secretaries to municipal-level entities (such as Mariana's environmental secretary). Relevant NGOs include EKSOS Brasil, Projeto Tamar, and Baleia Jubarte, an organisation that aims to preserve hunchback whales in southeast Bahia. One media member from The Intercept also was there, and a follow-up action to communicate RDP's closure might be required.

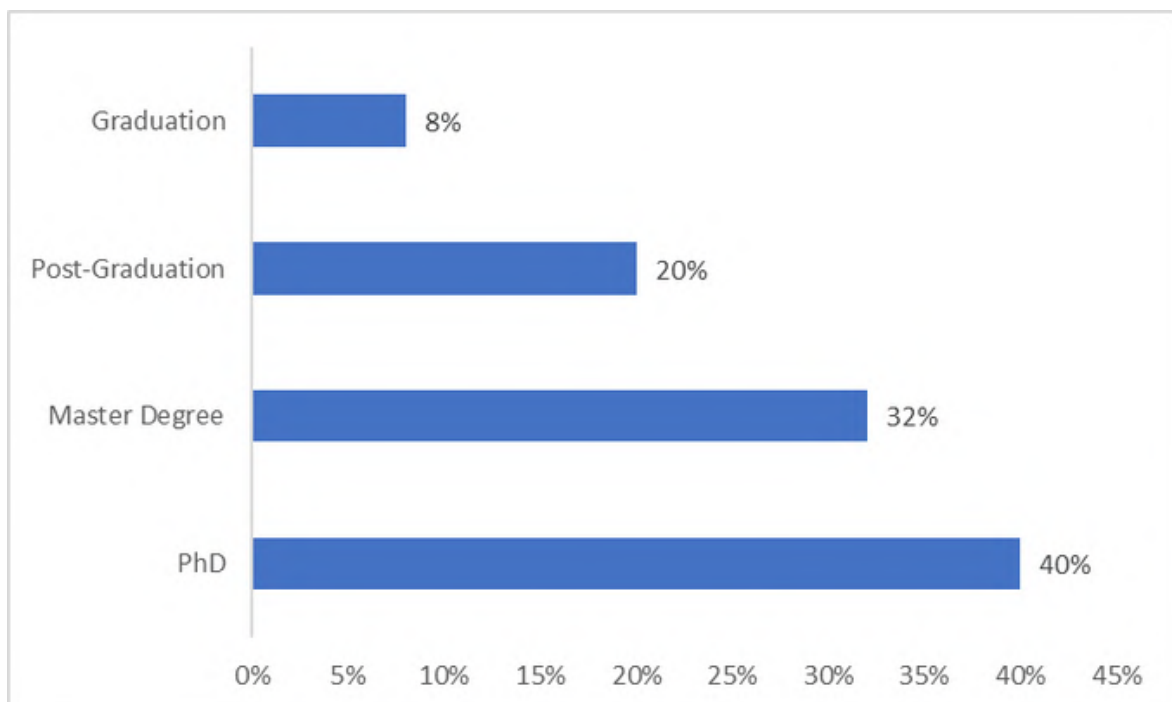
Graph 7 – Participants by Group of Institutions



b. Survey

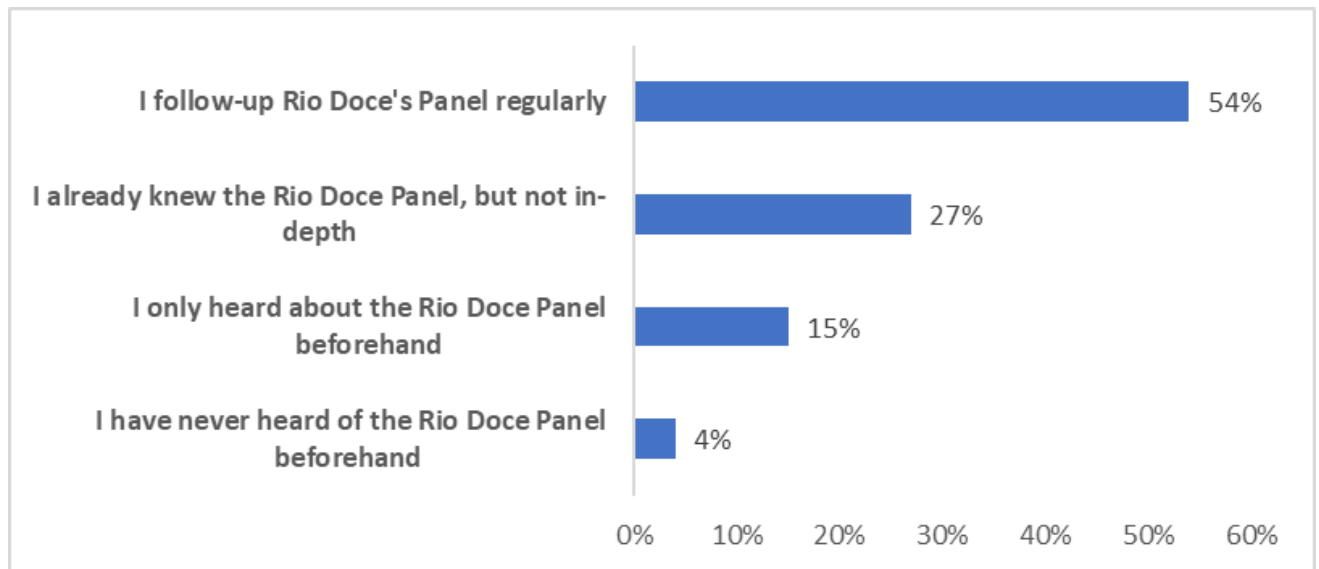
To complement the webinar insights, a survey, which received 26 respondents, was designed to capture the participants' knowledge of the RDP's work so far and the relevance and timing of TR05. To better understand our audience, an initial question was asked about the level of schooling of our attendees, per Graph 7, which showed a significant proportion of universities and research institutes. Graph 8 points out that the core of our audience is people with a PhD degree (40%) and a master's degree (32%).

Graph 8 – Schooling Level of Respondents



To understand if TR05 managed to reach a broader audience than those that already know the RDP's work, a second question asked about the level of knowledge about RDP products. As Graph 9 demonstrates, a majority of TR05's attendees were familiar with the RDP's work beforehand (54%), only one of the respondents (4%) had never heard of RDP, and four claimed they only recently heard about the RDP (15%). Out of those five people more unfamiliar with the RDP's work, two are from the Federal University of Espírito Santo (UFES), one is from Rede Rio Doce Mar, and one is from Minas Gerais' Forest Institute and another from environmental consultancy. Given that the RDP's work was highly technical and not for a general audience, per se, that indicates that most of TR05's intended audience was familiar with Rio Doce RDP's work, as will be demonstrated by Graph 5 as well.

Graph 9 – Familiarity with RDP's Work



The number of downloads and citations measure the success of Rio Doce RDP's Thematic Reports and Issue Papers. Both metrics indicate that TR01 is by far the most well-known document. Nevertheless, to understand if TR05's audience is more drawn to one specific document, we asked which of the past nine RDP's products were more well-known. The results are described in Table 4. As predicted, TR01 was the most known product, with 67% of participants claiming to know it. TR02, on the other hand, seem to be the least known of the Thematic Reports, a trend also observable in the MEL citation tracking. Out of the Issues Papers, IPO4 on Environmental and Social Assessment was the most recognised by TR05's launch audience, an understandable thing given the similarities of topics between the two products. On the other hand, IP01 and IP05 were the ones the public did not show any familiarity with.

Table 4 – Familiarity with the RDP's Products

I was unfamiliar with the RDP's work	12%	IP01 - Alternative livelihoods	21%
TR01 - Fundão's Impacts	67%	IP02 - Fishing ban	33%
TR02 - Climate Change	29%	IP03 - Juparanã	33%
TR03 - Source-to-Sea	38%	IP04 - Env. and Social Assessment	37%
TR04 - Governance	38%	IP05 - Human and Env. Health	21%

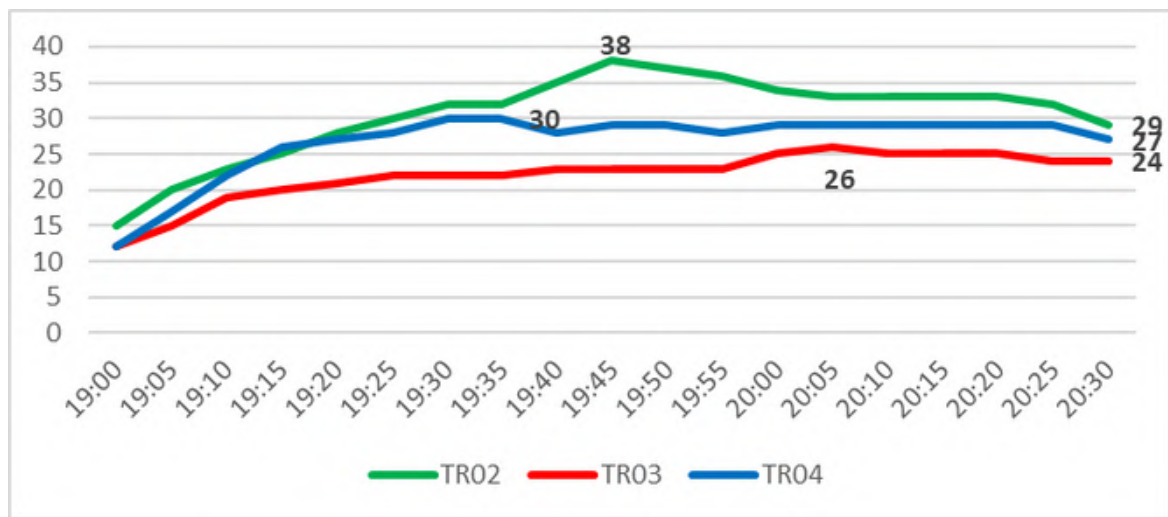
III. Conhecimento em Pauta webinars

The "Conhecimento em Pauta" series of webinars was an attempt by Renova to promote the Centro de Informação Técnica. This website hosts multiple scientific papers, oral testimonies by those affected by the tragedy, and internal documents. The website is a response to TTAC's program 35, which demanded Renova Foundation host a knowledge base for the reparation process. Given that the RDP had always engaged with Renova to foster data-sharing initiatives among reparation stakeholders, the RF invited RDP to send its scientific production to CIT.

A same consulting group called HP was responsible for organising the series of events, while one person, Maria Eugenia Salcedo, oversaw mediation. While IUCN communicated the events on its platform and social media, Renova needed to engage its communication team in any efforts. Therefore, in all three events, participation was meagre, with better results for TR02 and worst for TR03.

Graph 10 illustrates the participation patterns for all three events, which started at 19:00 and ended around 20:30. Thematic Report 2, presented on November 21, had a peak participation of 38 people at 19h43. The next day's presentation was TR03, which saw slimmer numbers of participants and reached a peak of 26 people at 20h15. On the 23, IUCN Secretariat asked for additional communication efforts to be made considering the shy participation of the other days, which may have contributed to the slight increase made by TR04, which had a peak of 30 participants joining at 19h30. All three webinars had different trends of participation throughout their duration. Questions were made in all participants, but more questions from members, which were not RDP members or IUCN secretariat, were made in TR04's presentation. Despite low participation, RDP members enjoyed the experience and appreciated Maria Eugenia's mediation.

Graph 10 – Conhecimento Em Pauta webinars



a. Event Analysis

The event-level analysis for the Impact Assessment webinar, Thematic Report 5's launch, and the Conhecimento em Pauta webinars helped create data points for each event. Although these events had different communication strategies and audiences, gathering a few common points and producing insights is possible.

First, data gathered from the Impact Assessment webinar and TR05's launch allow the creation of a profile of RDP's target audience. RDP's persona tends to be highly educated (with at least a master's degree) and deeply familiar with the Rio Doce reparation process. For both events, awareness of the RDP's work pooled around 80% and 90%, indicating a high degree of familiarity with the RDP's work, which peaked above IUCN's familiarity. Albeit TR05's launch pointed out that many attendees were linked with a higher-learning institution, the high participation rate of civic society, Renova staff, and consultancies involved in the reparation process were also present, mimicking the stakeholders of the reparation process as a whole.

Graph 11 in the download metrics section indicates that the webinar impacted TR01's download metrics. The same comparison cannot be made to TR05's launch and Conhecimento em Pauta since they were both made in November, a month that naturally increases downloads because of the disaster's anniversary (see the Analysis on the Rio Doce RDP's Impact document). Despite this download increase, data points that TR05's launch might not significantly impact other Report downloads.

III. 10th Rio Doce RDP face-to-face meeting (RDP10)

The 10th Rio Doce RDP face-to-face meeting (RDP10) occurred in Minas Gerais from July 2 to July 10. Along with Rio Doce RDP Members and IUCN Staff, Michiel Meijer, responsible for the Final External Evaluation, and Frederico Viana, writer of the Stories of Influence, participated. The meeting aimed to understand the current status of Renova's programs and its uptake of RDP's recommendations. It also aimed to promote closer contact between RDP members to discuss documents under the writing process (TR05 and the Legacy Paper). Geographically, IUCN participated in meetings and field trips in Belo Horizonte, Mariana, Ouro Preto, Barra Longa, and Rio Doce.

Since this was not the first RDP in the region, the RDP revisited on-site programs and witnessed the ongoing reparation efforts, including Candonga, which underwent considerable alterations since RDP's last visit. Previous N-Vivo analyses captured that Candonga was a constant subject of political pressure by the state government of Espírito Santo and its municipalities since the dam continued to release accumulated tailings to the river during the wet season.

CONHECIMENTO EM PAUTA
 Tema: "Painel Rio Doce – UICN"
 Datas: 21 | 22 e 23 de novembro
 Evento Virtual 19h às 21h

21/11
 Integração da perspectiva da mudança climática na restauração da Bacia do Rio Doce.
 Mediação
Maria Eugenia Salcedo
 Mediadora, pesquisadora e consultora. Mestranda em Artes e História da Arte.

Palestrantes:
Christianne Maroun
 Professora de Engenharia Ambiental na PUC-Rio. É especialista em mudanças climáticas e governança ambiental no Painel do Rio Doce.
Peter May
 Professor da Universidade Federal Rural do Rio de Janeiro (UFRRJ), especialista em recursos naturais e economia ecológica.

22/11
 Abordagens fonte-mar e de paisagem: integração da qualidade da água e conservação da biodiversidade na restauração da Bacia do Rio Doce.
Palestrantes:
Francisco Barbosa
 Vice-Presidente do Painel do Rio Doce, especialista em ecologia e conservação de ecossistemas aquáticos. Professor da Universidade Federal de Minas Gerais (UFMG).
Maria Cecilia Wey de Brito
 Diretora de relações institucionais do Instituto EKOS Brasil, ex-secretária de Biodiversidade e Florestas do Ministério do Meio Ambiente do Brasil. É especialista em gestão da paisagem e da biodiversidade no Painel do Rio Doce.

23/11
 Da restauração à governança responsável: o Rio Doce após o rompimento da barragem de Fundão.
Palestrantes:
Christianne Maroun
 Professora de Engenharia Ambiental na PUC-Rio. É especialista em mudanças climáticas e governança ambiental no Painel do Rio Doce.
Jonathan Renshaw
 PhD em Antropologia Social, especialista em desenvolvimento social e ex-especialista-líder em salvaguardas sociais do Banco Interamericano de Desenvolvimento.

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Realização: **CIT** Parceria: **UICN**

MEL strategy also captured that this complaint made the dam's administration change from Renova to Samarco at the beginning of 2022. Nevertheless, it failed to anticipate that the mining company managed to remove the bulk of the tailings from the river, leaving only residual tailings. When RDP members revisited Candonga on July 7, they were impressed by the agility of operations. In February 2023, the Court of Justice allowed Samarco to fill the dam's reservoir and restart operations in a trial phase.

On July 5, RDP10's participants got a chance to witness for the first time the resettlement of the Bento Rodrigues, how the construction works were occurring, and visit a public school for children and some finished houses. In its final stage, the project impressed RDP members with its grandiosity and visible difference from the original village.

On the other hand, the RDP was negatively affected by its visit to the municipality of Barra Longa. Renova originally built a deck in the city centre that margined the river and provided a leisure spot for its citizens. However, flash flooding two years ago destroyed the place, and the city hall could not repair it. The RDP also visited the Germano industrial complex, which resumed operations at the end of 2021 and witnessed the infrastructure complex designed to host the new tailings and the remains of the Fundão dam.



On the left, the view of Novo Bento. Below, RDP visits the SAMARCO complex. Photo: IUCN RDP Archive



Back to Belo Horizonte, the RDP presented its work and organised future actions with several stakeholders relevant to the reparation context. Professor Sanchez and other IUCN RDP specialists presented the impact assessment methodology and TR05 to CT-Bio, a technical committee within CIF that clashed with Renova over its marine impact assessment perspective. After hearing their concern, RDP understood how to adjust TR05 to increase other stakeholders' confidence in the document.

The RDP also met with the Pro Rio Doce committee and Minas Gerais' Management Secretariat to understand the renegotiation process's status and discuss possible future actions. In this meeting, the RDP attested that the state government used IUCN's publications in its planning, such as TR02 for climate change resilience planning and TR03 for adopting a broader water basin-centred perspective in the renegotiation process.

A few RDP members had a chance to meet with André de Freitas, Renova's current president, and understand more about the judicial process against Samarco in the British judicial system, which might affect or even hamper reparation efforts. RDP specialists also discussed TR05, municipal aid, and the last RDP documents. A small meeting was also held with Dra. Ludmila, a public prosecutor, presented the work of the RDP.

SECTION III - 2022 Data and Metrics

I. Renova's Feedback on Thematic Reports 3 and 4

In May, the Renova Foundation retrieved the feedback from Thematic Reports 3 and 4, published in April and August of 2021, respectively. Since TR05's recommendations did not receive formal feedback, these responses marked the end of Renova's three-year-long official feedback process, which started in September 2019 with IP01's devolution. In addition to analysis of the feedback, the MEL Official also accompanied the implementation of these recommendations using N-Vivo and had follow-up interviews with Renova and other partnerships to fulfil knowledge gaps. Because of common issues, some recommendations will be bundled together.

Both TR03R01 and TR04R01 focused on the adoption of source-to-sea and landscape approaches. The first suggested adopting "a source-to-sea framework and an integrated landscape approach in the Rio Doce watershed restoration efforts". At the same time, the latter recommends "Build a common vision for the Rio Doce source-to-sea system". Despite the similarities, they received feedback under different categories. RF established that the TR03R01 recommendation "reinforces current practices of Renova Foundation that will be continued", and TR04R01 received a category "B" response, implying partial implementation.

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Albeit under different categories, Renova's responses have many shared points. In both feedbacks, the RF promised to scale up forest restoration and revitalisation of springs programs and improve its biodiversity efforts. It also mentions that it promoted a "Landscape Analysis pilot" in partnership with UNESCO. Nevertheless, TR04R01's feedback argued that the RF "is not empowered to coordinate the measures described in the recommendation".

Follow-up activities bring mixed perspectives on the main source-to-sea-related topics. As of August 2022, reforestation and spring activities were below TTAC-defined goals but were progressing rapidly. After an initial pilot, Renova scaled up its program with WRI to disburse grants for reforestation and spring recovery efforts among small and medium landowners. The project faced some obstacles during the pandemic, leading the partnership to expire, but Renova and WRI arranged a new contract under similar terms to start at the beginning of 2023.

The landscape analysis pilot suffered a different fate. It is no longer one of the pillars of Renova's partnership with UNESCO, which focused on promoting community participation in water quality monitoring in three communes in the Rio Doce basin. A conversation with one current Renova member and a former one pointed out that the landscape approach no longer became central because of a lack of internal support after one of its main advocates within Renova switched areas and another left the RF. The initiative was cancelled altogether, and as of December 2022, there is no current evidence of sustained landscape approach use in Renova's programs. There is no evidence of Renova epistemologically adopting the source-to-sea in its programs or changing the way it implemented TTAC programs based on this concept.

TR03R02 and TR03R03 are related to improving the quality of the water monitoring programs, with the former focusing on promoting a broader assessment of the data and the latter suggesting an inclusion of synergistic effects analysis. Both recommendations received "C" feedback, implying that Renova will not implement either. The RF stated that its goal was not to create an overall assessment of PMQQS (the water quality monitoring program) data but to maintain it for other stakeholders to use it. Similarly, Renova also claimed that it was impossible to measure synergistic effects on toxic compounds because of a lack of a commonly agreed methodology. A conversation with a Renova technician in RDP underlined a shortage of laboratories that could make this kind of analysis.

TR03R05 recommended "Expand the existing monitoring plan in order to inform and prioritise biodiversity restoration activities" and received a "B" feedback score from Renova, implying a partial implementation of the recommendation. In the response form, the RF advocated that it would create a better assessment of the marine environment along with the RDP, but internally it did not find the need to expand existing programs. A more detailed analysis of the impact framework is provided under TR05's section.

The fourth recommendation of Thematic Report 3 suggested: "Strengthen technical support to municipalities for implementing a comprehensive, innovative and modular basic sanitation program for the watershed". Renova's response was to categorise the first under "A2", implying that Renova did acknowledge its shortage in this area and that it will increase its actions. TR04R04 also promoted sanitation programs in the watershed, suggesting a closer collaboration with the Rio Doce Watershed Committee for technical support to municipalities.

Renova's feedback shared a common point that small municipalities along the Rio Doce watershed lack the financial resources to invest in sanitation measures. Additionally, municipal governments might lack the technical capacity to support sanitation programs. Because of this, Renova is investing more than R\$ 695 million in sewage collection projects. Closer N-Vivo analyses show that RF has recently finished sanitation works in neighbourhoods of Governador Valadares outside of the city centre and that has engaged to start new projects with Espírito Santo cities, such as Colatina.

TR04R04's response also shared similar points regarding sanitation measures. Still, it also features a common trend between TR04's governance recommendation: Renova's reluctance to embrace the RDP's suggestion for a closer collaboration with other stakeholders. The External Evaluation point out that Renova has a volatile relationship with other stakeholders in the reparation context, and distrust might be an obstacle to everyday actions. In TR04R04's feedback, which received a "B" mark of partial implementation, the RF agrees with the importance of providing technical support to municipalities but argues that it is not "empowered" to create and coordinate an Integrated Water Resources Plan along with CBH-Doce for the water basin.

In another example, TR04R02 suggested Renova should "Prepare for the transition to the post-Renova era", arguing that the Foundation should prepare for a passing of the baton and promote engagement with other stakeholders. The RF's answer argued that the Foundation was not in the renegotiation process and would not the recommendation, ignoring the suggestion of increasing engagement and collaboration with other stakeholders in the programs regardless of the renegotiation process.

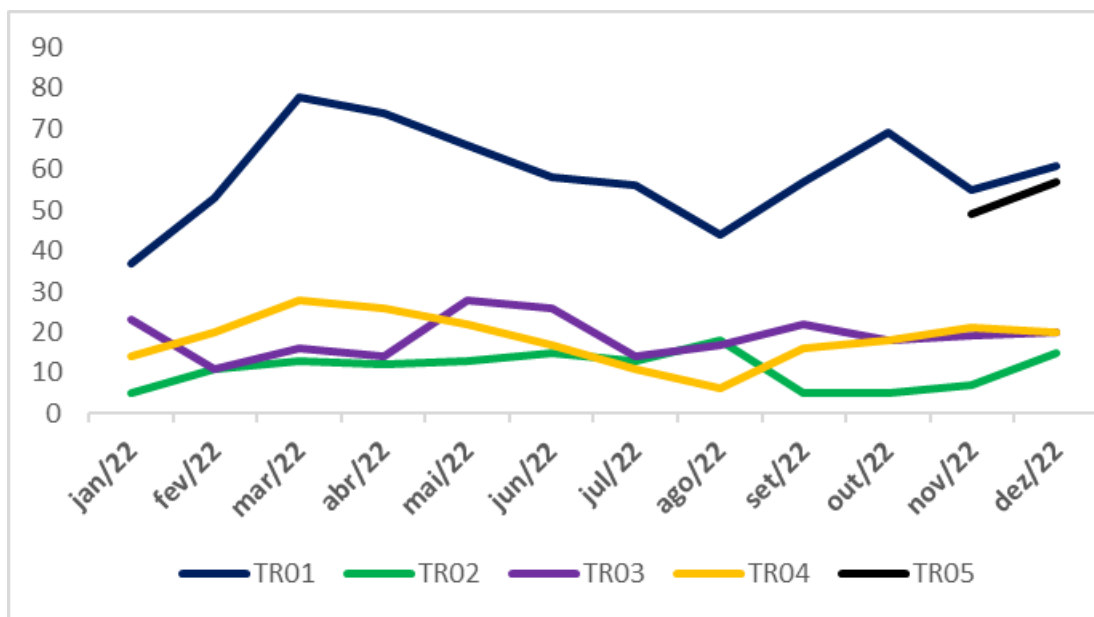
Renova agrees more with recommendations that do not depend on institutional collaboration for their implementation. TR04R03 suggests "Create a repository of data, information and documents" in collaboration with CIF. This recommendation received an "A1" mark, with its feedback mentioning the Center for Technical Information (CIT) as an online repository of information with three on-site locations - Mariana, Governador Valadares, and Linhares. Despite agreeing with the recommendation, its feedback did not mention CIT once, nor any action in collaboration with other stakeholders.



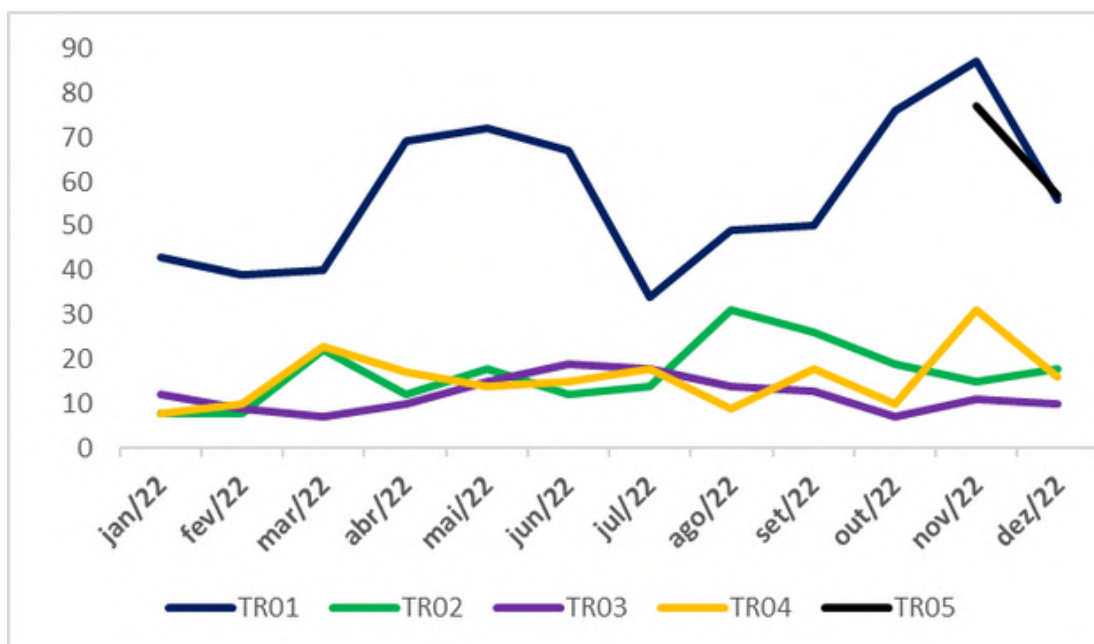
II. Download Metrics

Graphs 11 and 12 show the number of downloads per document for the English Download Metrics for 2022, showing a decrease in access to RDP's documents compared to other years. As in other years, TR01 is by far the most downloaded paper, accounting for around 50% of total downloads in both languages.

Graph 11 -- 2022 Download Metrics by Document – English



Graph 12 – 2022 Download Metrics by Document – Portuguese



Numbers also point out that TR02, TR03 and TR04 reached a low monthly average download ranging from 11 (TR02 – English version) to 19 (TR03 – English version). Aggregate numbers also point out that, despite having published TR03 and TR04 in IUCN, the Portuguese version of documents had 1353 aggregated downloads, a decrease of 27% in comparison with 2022. Thematic Reports written in English also decreased by 19%, as demonstrated by Table 5.

Table 5 – Aggregated Download Numbers per Year and Yearly Variation

Year	ENG	Var Eng	PT	Var PT
2019	1783		1263	
2020	1431	-19.7%	1599	26.6%
2021	1735	21.2%	1860	16.3%
2022	1393	-19.7%	1353	-27.3%

III. Impact Log

IUCN RDP Members and Secretariat recorded nine new entries in the impact log, pointing to a downward trajectory from previous years. Nevertheless, after further investigation, it was possible to claim that the RDP's documents directly impacted the government of Minas Gerais and the marine impact assessment of the Rio Doce RDP.

During a meeting in RDP10 where members of the Minas Gerais management Secretariat attested to using RDP documents for their activities, a follow-up meeting was organised two weeks later. Previous MEL analyses had already pointed out that Minas Gerais' government read TR02 and mentioned a possible collaboration between IUCN and the state government to develop a statewide climate action plan. Since a resilience-enhancing climate plan was published in 2022, the hypothesis was that IUCN influenced this.

Instead, RDP's impact on the Minas Gerais state government happened differently. Staff members of the Environment Secretariat denied using TR02 for their climate action plan, saying they did not promote the plan as a response to Mariana or Brumadinho but rather as a "natural evolution" of the previous environmental plans. In the same meeting, officials from the Minas Gerais' Planning Secretariat said that SISEMA (Minas Gerais' Environment System) is trying to push for a plan in the renegotiation process that considers the source-to-sea approach and that they are using the RDP's documents the benefits of it. However, since the renegotiation process is ongoing, evidence of how the Source-to-Sea and TR03 will be used is still unclear.

Another relevant impact was the adoption climate change plans by the Rio Doce-centered committee. The sub-basin of the Rio Manhuaçu incorporated climate-change considerations into its multi-annual plan. Albeit it is unsure whether TR02 influenced Manhuaçu, there is evidence that CBH-Doce used TR02 as one of the sources for incorporating climate change into its new Hydrological Resource Plans. In this document, adapting infrastructure and considering climate change's impact on the watershed is the most critical priority for the following years.

Finally, RDP's documents on impact assessment and the construction of TR05 significantly influenced Renova and the Fundação Brasileira de Desenvolvimento Sustentável (FBDS) in 2022, as already stated. In a congress, FBDS, amidst its collaboration with Renova, presented its work cataloguing hundreds of academic papers to assess the strength of evidence that Fundão's rupture impacted the papers' subject. These studies ranged from water quality to specific components of the eco-marine environment.

Although it is unclear if RDP's early recommendations to create a broad impact assessment on the basin had any impact on the hiring of FBDS, it is proven that FBDS had a broad collaboration with the RDP, and FBDS claimed to have used TR02, TR03, and IP04 to create its monitoring and assessment framework. Collaboration with FBDS was even closer during the construction of TR05 on marine impact assessment, and inputs and suggestions from FBDS researchers – such as Prof Carla Duarte and Prof Aliny Pires – were included in TR05 to facilitate the implementation of the methodology proposed. Since TR05 was launched in late November, it is still unsure how its framework will be used, but there is evidence that it will be one pillar for FBDS's aquatic biomonitoring proposal.

IV. Academic citations

2022 had the most number of academic citations in the RDP's history, with 16 papers captured by the MEL citation capture strategy. The citations were captured by a broad Google alert trend for all English and Portuguese versions of the Thematic Reports, in combination with an Altmetrics profile that captures citation made by other papers on the platform. The list below shows the name of the seven articles published in scientific journals that used TR01 as an academic source, customarily used to describe the impact of the Fundão's disaster:

- *“Manipulação do Disclosure para Reparação da Imagem Corporativa Após um Desastre Ambiental: Um Estudo do Impacto do Rompimento da Barragem nos Relatórios de Sustentabilidade da Samarco”* by FEI researchers
- *“Potential adverse effects of heavy metals on clinical health parameters of *Caretta caretta* from a nesting area affected by mining tailings in Brazil”* by PUC-RS researchers.
- *“Do metals differentiate zooplankton communities in shallow and deep lakes affected by mining tailings? The case of the Fundão dam failure”* by UFOP
- *“Parasitological, microbiological, and antimicrobial resistance profiles of raw and drinking water in a tourist city in the tri-border region of South America”* by UFPR researchers.
- *“The Market and Investors Reactions to Mariana’s and Brumadinho’s Environmental Disasters: Sentimental or Rational Decisions?”* by UFRJ researchers.
- *“Relationship of woody species composition with edaphic characteristics in threatened riparian Atlantic Forest remnants in the upper Rio Doce basin, Brazil”* by the University of Montes Claros researchers.
- *“Barragens de rejeito mineral pelo prisma da economia ecológica sob duas análises temporais”* by USP researchers.

As section 2 points out, albeit TR01 continues to be the most frequently cited paper, other Thematic Reports and Issue Papers increased their academic impact. They offered a more varied use of the RDP's documents. TR03 and TR04 were published in 2022, and given the lengthy process of writing, publication and peer review, their academic impact might take longer to assess.

- "*Spatiotemporal Discharge Variability of the Doce River in SE Brazil During MIS 6 and 5*", written by Goethe Institute (Germany) researchers, uses TR02 to describe the disaster and to assess the long-term vulnerability of the Rio Doce basin.
- "*Parasitological, microbiological, and antimicrobial resistance profiles of raw and drinking water in a tourist city in the tri-border region of South America*", written by UFPR researchers, uses TR02 to discuss water quality and diversity.
- "*Limnology and the Sustainable Use of Water in Brazil: visions and challenges*", written by UFMG researchers, uses TR03 to explain biotic and abiotic interactions in the river and floodplain.
- "*Revisão Sistemática de Literatura do modelo de governança da Renova Foundation: subsídios para uma análise crítica*", written by UFSCAR researchers, use TR04 to describe to criticize Renova's Governance structure.
- "*Four new species of pleroma (Melastomataceae) from campos rupestres and vegetation on granitic inselbergs in Eastern Minas Gerais, Brazil*", written by UFPR researchers, uses IP01 to describe that the Rio Doce region has historically relied on extractive economic activities.
- "*Ecotoxicological impacts of the Fundão dam failure in the freshwater fish community: Metal bioaccumulation, biochemical, genetic and histopathological*", by FEST researchers, uses IP03 to explain that Juparanã did not receive the tailings.
- "*The Routledge Handbook of the Extractive Industries and Sustainable Development Routledge*", written by French KEDGE Institute researchers, mentions IP04 to explain that the impacts of the dam's rupture were still not fully understood and that the results are being monitored.

Additionally, two other papers cite the Rio Doce RDP's work and role in the reparation context but do not use its academic documents as a source.



Impacts of the Fundão Dam failure: a pathway to sustainable and resilient...

Book in International Union for Conservation of Nature, September 2018



Mainstreaming climate change in the Rio Doce watershed restoration

Book in International Union for Conservation of Nature, July 2020



PART II

CONCLUSIONS

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The year 2022 was challenging for the Rio Doce Panel and IUCN Secretariat, having to conciliate coordinating, writing, and reviewing two internal documents (TR05 and Legacy paper) and two external ones (External Evaluation and Stories of Influence), organise a field trip (RDP10), and host or participate in three major events (webinars, TR05's launch, and Conhecimento em Pauta) in its closing year. Additionally, IUCN Secretariat had to engage with management tasks, such as producing institutional communication pieces and webinars, planning the future of IUCN Brazil, take part in other non-RDP projects at a national and IUCN Sur level, along with other routine activities.

This number of activities overflowed the small IUCN Secretariat staff and the RDP specialists, which did not have exclusivity for the RDP. Therefore, publications experienced delays, and IUCN Secretariat had to ask for a contract extension until March of 2023, with no financial increase. Renova was initially reluctant but signed the contract extension.

Is the RDP informing and influencing target audiences in the way it anticipated? If not, then how?

It is possible to attest that RDP did inform and influence Renova positively. At the end of the last year, Renova required a change in the modus operandi of the RDP, asking for collaborative construction of the marine impact assessment framework. Renova's staff members and technicians evaluated positively the changes made by the RDP and found TR05's modus operandi to be more used than the previous recommendation system operated by the RDP. Furthermore, this new system allowed Renova to start working on information provided by the RDP much earlier than they would have. The RDP's impact on other audiences is reflected below, but the RDP also attested to its influence on CBH-Doce and Minas Gerais' government.

Are the RDP and IUCN performing as they expected in the planning phase?

The changes in modus operandi are especially relevant if considering Renova's feedback for TR03 and TR04 indicated a low acceptance rate, suggesting that the Foundation will not implement most of the RDP's recommendations. Therefore, it is safe to say that the RDP and IUCN were performing according to the renewed Renova's expectations, despite delays in document publications.

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What impact has the RDP had on how its audience undertakes its core activities, and how lasting are these change likely to be?

Impact on other stakeholders is mixed but overall positive. The RDP's documents experienced a sharp decrease in download numbers in 2022, coinciding with a reduction in the public interest in the Mariana disaster. On the other hand, the past year witnessed the peak of RDP's influence on academic work, increasing its scientific reach in national and international universities. A closer analysis of scientific timing in Section II also indicates that this academic knowledge pickup might increase in 2023.

Are there any unintended consequences of RDP actions?

The pickup of TR03's source-to-sea concept by the Minas Gerais state government, which might affect the governance of the water basin in the renegotiation process, was an unintended action of the RDP. Additionally, using TR02 and including climate change modelling and preparedness in the future Water Management Plan for the Rio Doce basin by CBH-Doce was another surprise outcome.

What does the RDP know that could enhance other ISTAP-related processes?

The publication of the Legacy Paper and the External Evaluation provided meaningful insights to other ISTAPs about how to relate with the donors, adapt to ever-changing conditions, and improve the effectiveness of a scientific RDP.







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