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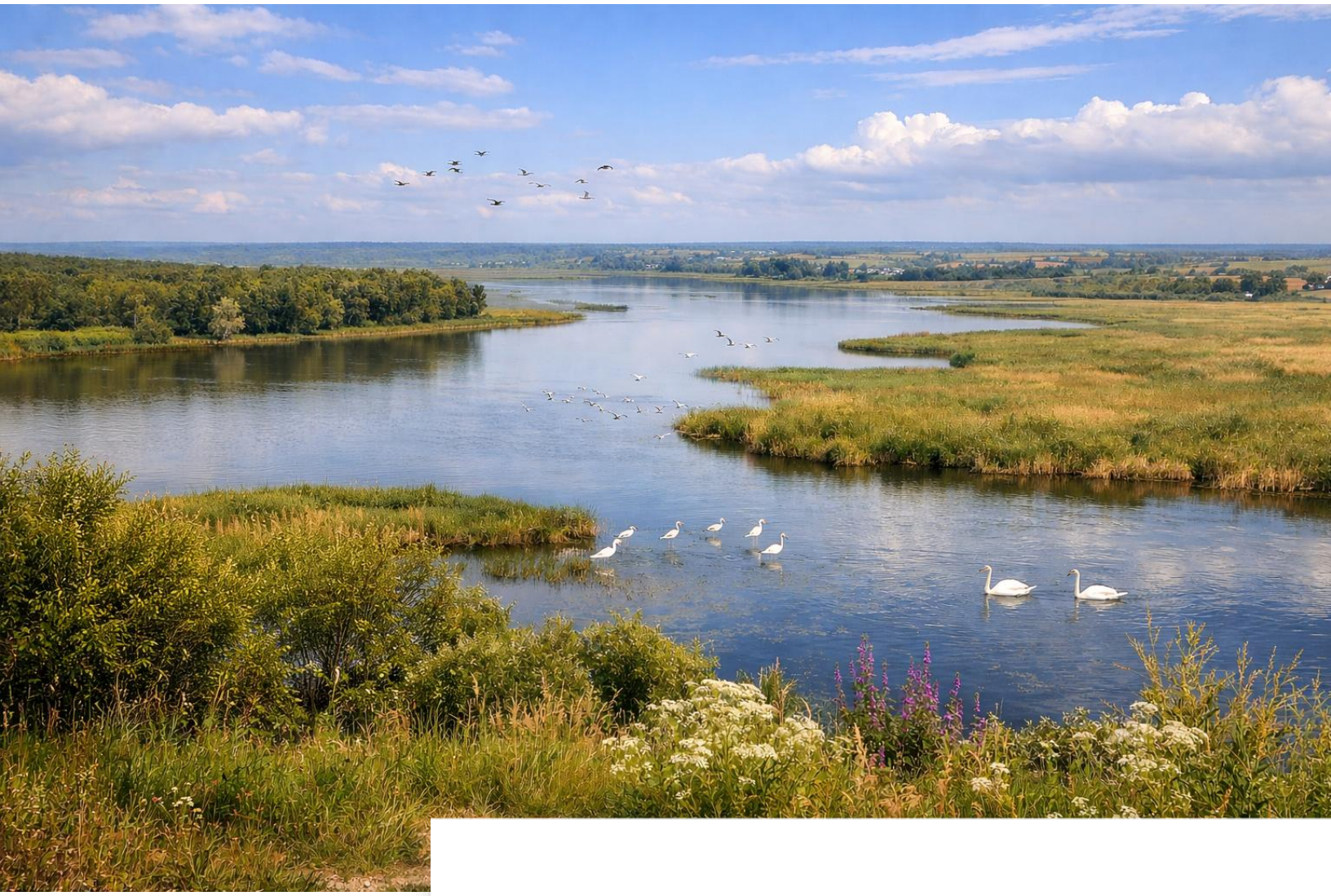


Carbon Binding Blue Black Sea (BlueC)

BSB00020

National survey report: Integration of aquatic plants in EIA (Republic of Moldova)

Executive Summary

This report presents the findings of a national survey conducted under the BlueCarbon project to assess perspectives on integrating aquatic plants (macrophytes, seagrasses, etc.) into Environmental Impact Assessment (EIA) legislation and to evaluate awareness levels in Republic of Moldova. Aquatic plant habitats provide critical ecosystem services – supporting biodiversity, stabilizing sediments, improving water quality, and sequestering carbon – yet their importance has historically been underrecognized in policy and EIA processes. The survey results reveal low public and stakeholder awareness of these ecosystems' roles, but an overwhelmingly positive attitude toward strengthening their protection. A vast majority of Republic of Moldova respondents support explicitly including aquatic vegetation in EIA procedures, citing ecological and long-term socio-economic benefits. Few believe current regulations are adequate, pointing to significant legislative gaps. Based on the survey insights, this report recommends concrete steps to better integrate aquatic plants into EIA and environmental management, including developing clear assessment guidelines, enhancing expert involvement, raising awareness, and updating policies.

Methodology

Survey Design: The study employed a mixed-method approach consisting of a legislative review and a stakeholder survey. First, an analysis of Moldova's EIA regulations and related environmental laws was conducted to determine if and how aquatic plants are currently addressed. This desk review indicated that while aquatic habitats may be implicitly considered as part of biodiversity or water factors, there are no explicit provisions or criteria focusing on aquatic macrophytes/seagrasses in the national EIA framework. Second, a structured questionnaire was distributed (primarily online, with some in-person outreach) to gather perspectives from a broad range of stakeholders in Republic of Moldova, including environmental professionals, academics, government officials, and interested members of the public. A total of 1,423 respondents participated in the survey, providing a robust sample for the national analysis. The questionnaire included sections covering: (1) respondent demographics and background, (2) awareness and knowledge of aquatic plants and their ecosystem services, (3) perceptions of current legislation and the need for integration of aquatic plants in EIA, (4) attitudes toward the potential impacts (benefits or challenges) of including aquatic plants in EIA processes, and (5) open-ended questions for additional comments or suggestions.

Data collection and analysis

Most questions were close-ended (multiple choice or Likert-scale) to quantify opinions, supplemented by one open-ended prompt where participants could share any further thoughts. Quantitative data were analyzed to produce frequency distributions and identify major trends in perceptions. The qualitative responses were reviewed for common themes and illustrative opinions. Notably, the survey achieved broad geographic coverage across Republic of Moldova and captured respondents with varied expertise – from laypeople with an interest in nature to specialists in marine/freshwater ecology – thus providing a comprehensive view of current awareness and attitudes.

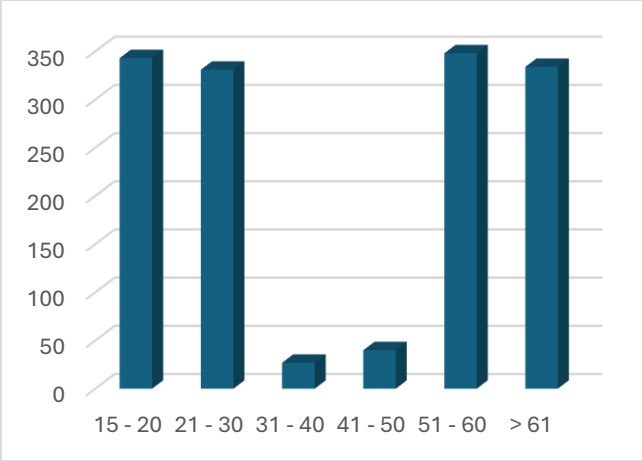


Fig. 1. Age of respondentFig.

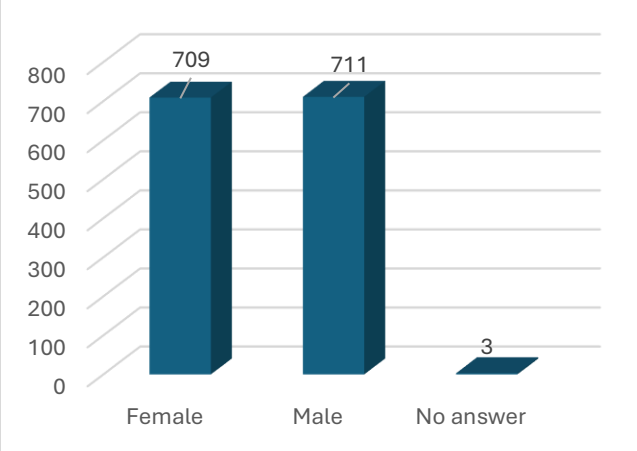
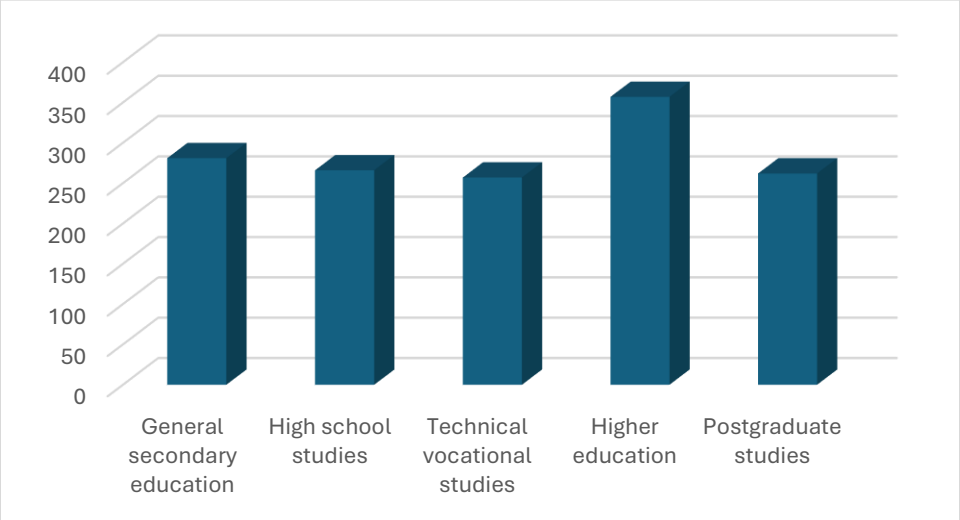
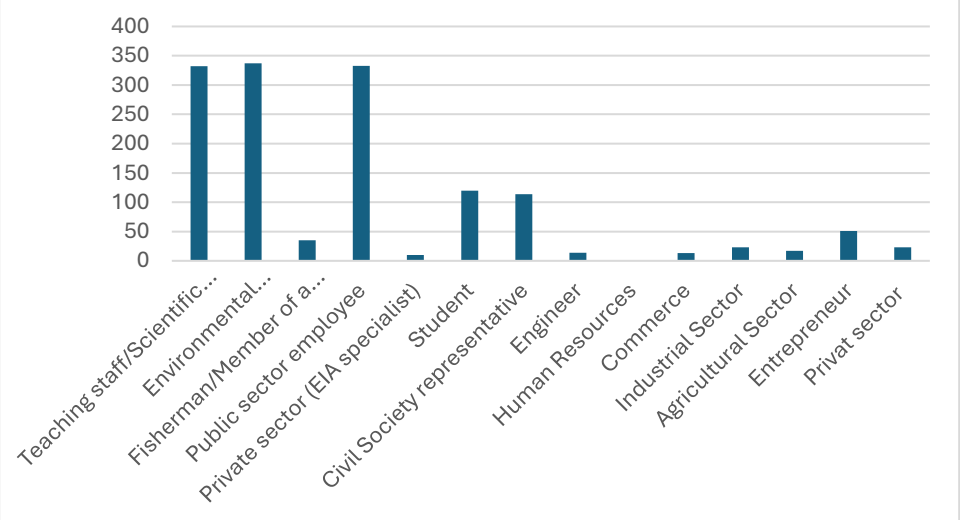


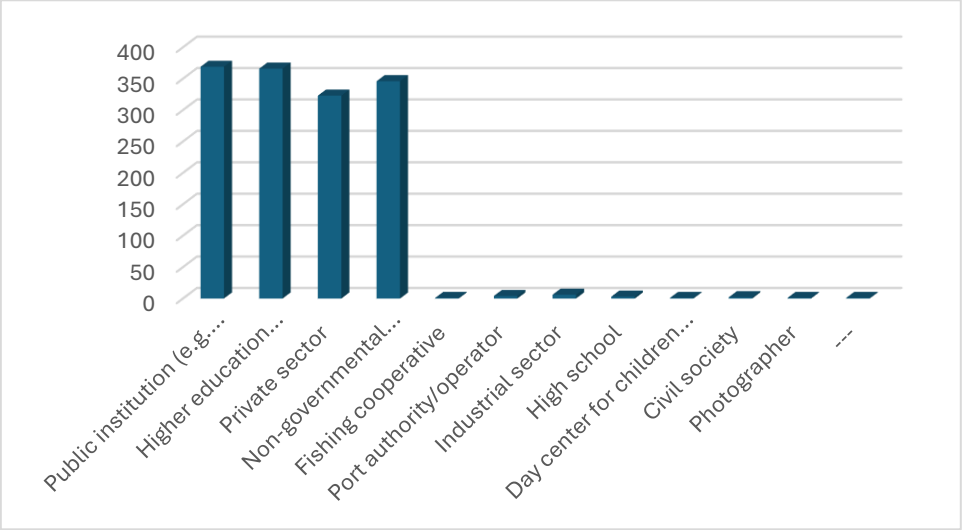
Fig. 2. Gender of respondents



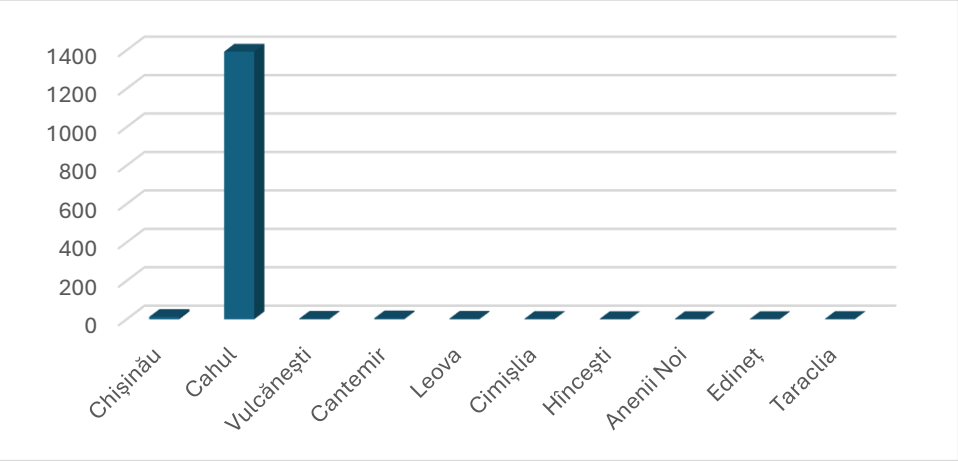
3. Education



4. Profession/Occupation



5. The type of institution/organization you work



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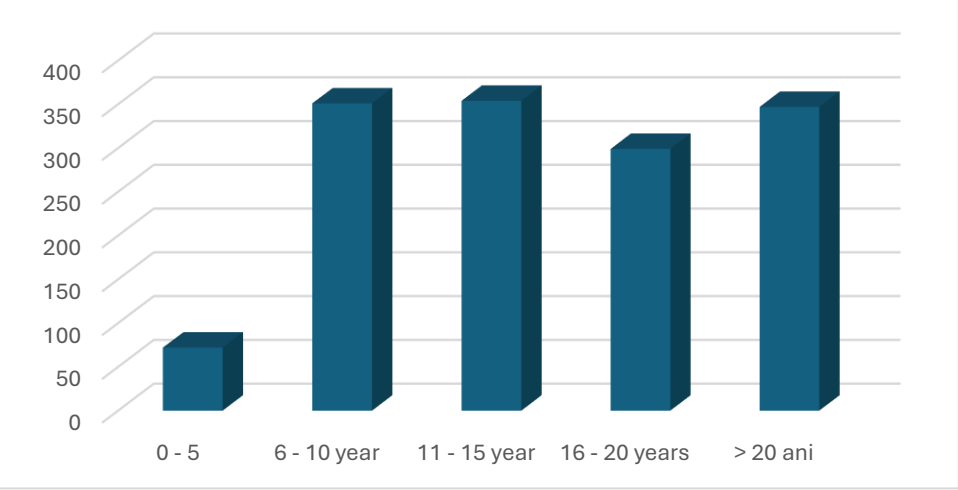
6. Region/City Where You Work or Reside



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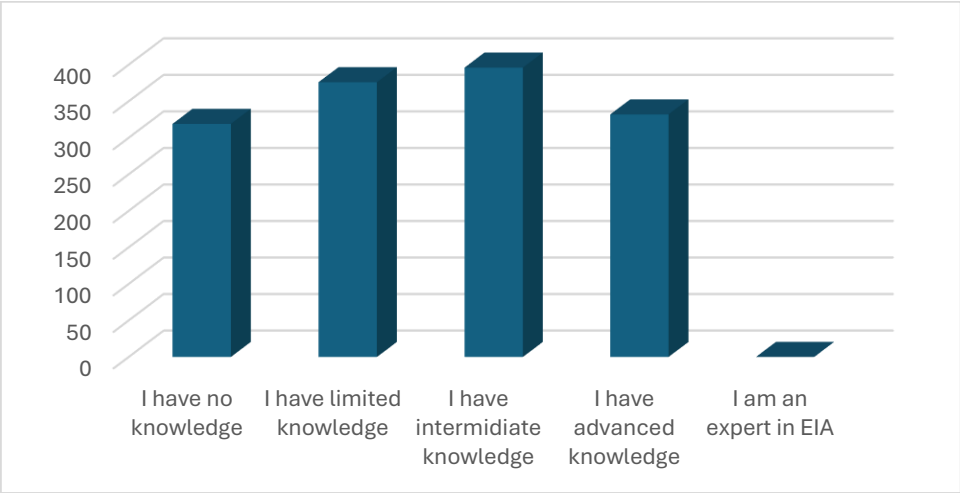
7. Professional experience



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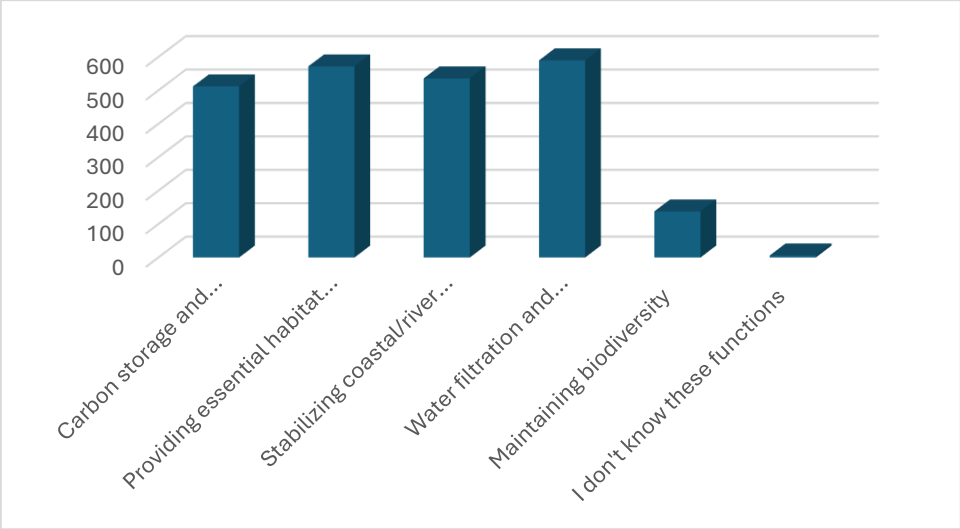
8. Your Knowledge Level of EIA Processes



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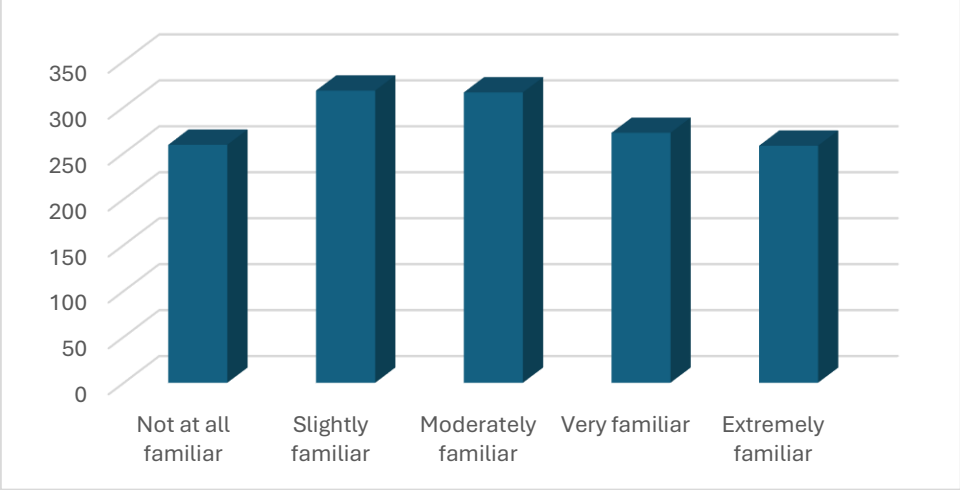
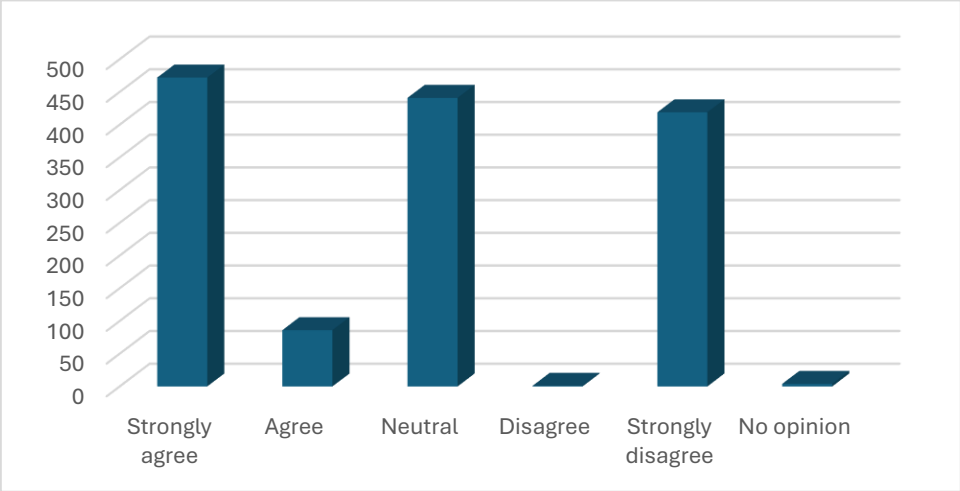
9. Which of the following ecosystem services provided by aquatic plants do you know?



10. How familiar are you with the economic value of aquatic plant meadows?



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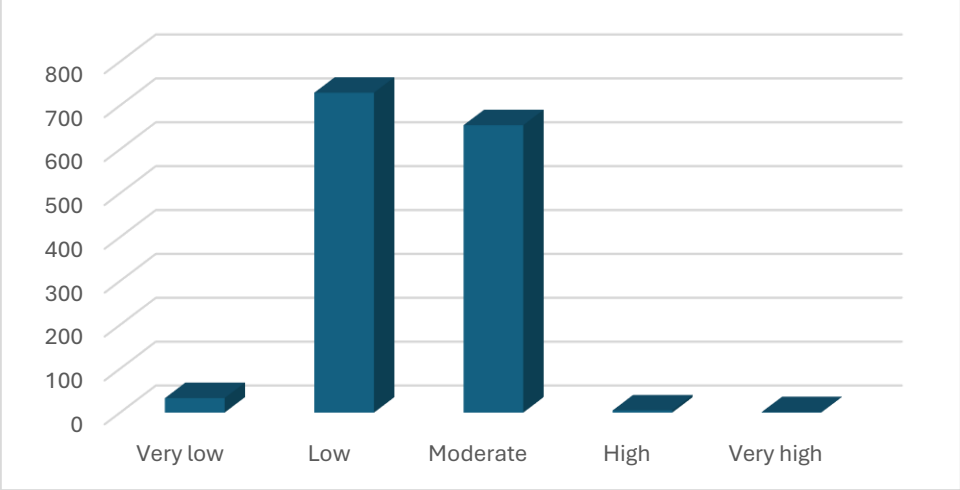
11. Do you believe aquatic plant meadows play a significant role in mitigating climate change?



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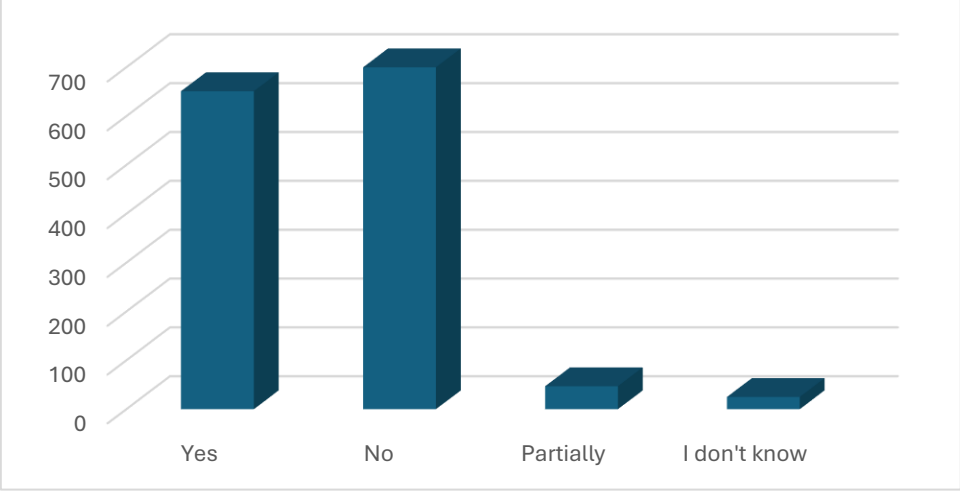
12. How would you evaluate the public awareness level regarding aquatic plants?



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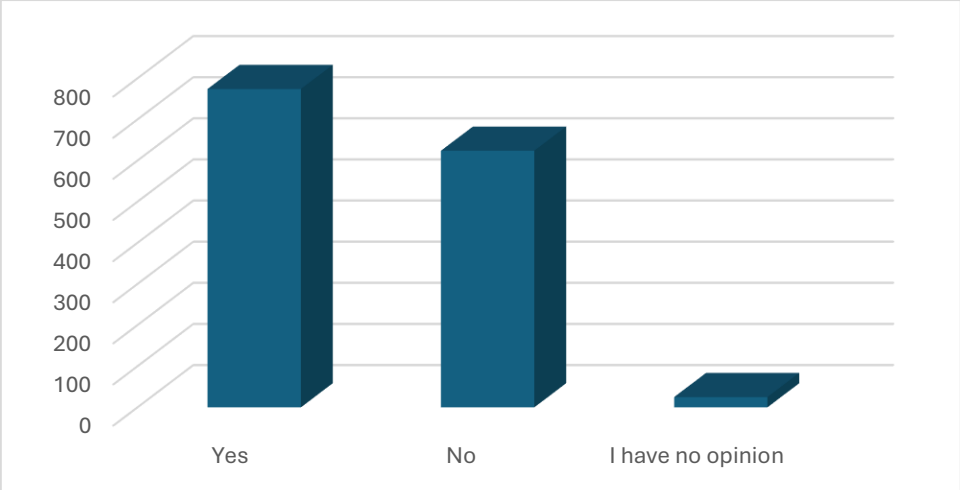
13. Do you find the existing legal regulations sufficient for the protection of aquatic plants?



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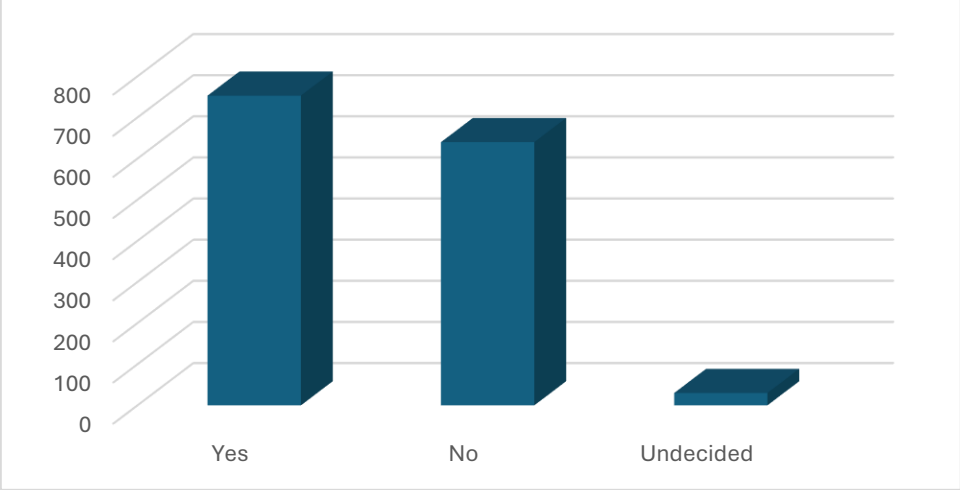
14. Do you think aquatic plants should be considered in EIA processes?



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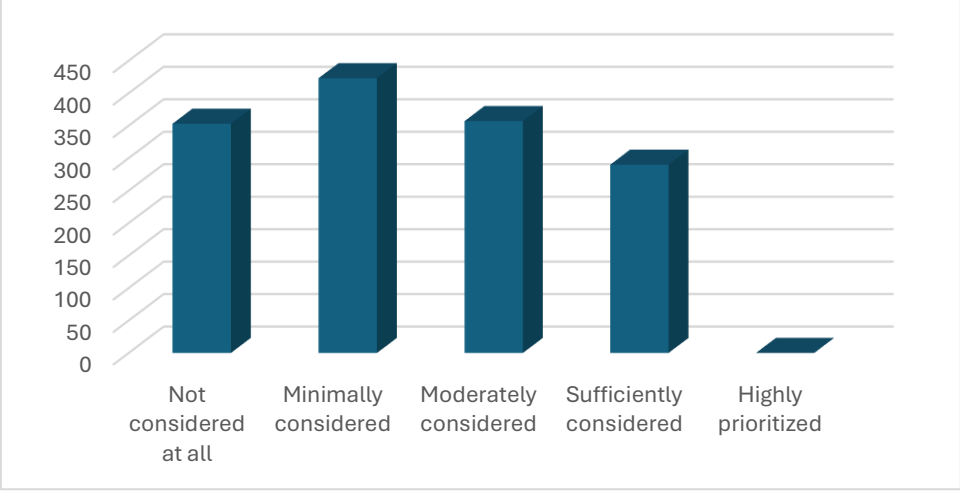
15. Do you think there should be specific criteria for the protection of aquatic plants in EIA processes?



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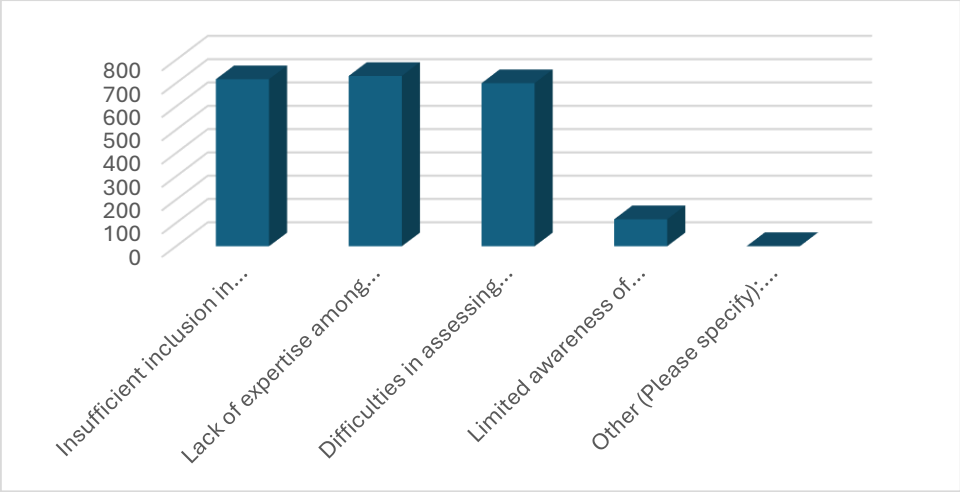
16. Do you think coastal projects (ports, marinas, land reclamation, etc.) in your country adequately consider aquatic plant meadows in EIA processes?



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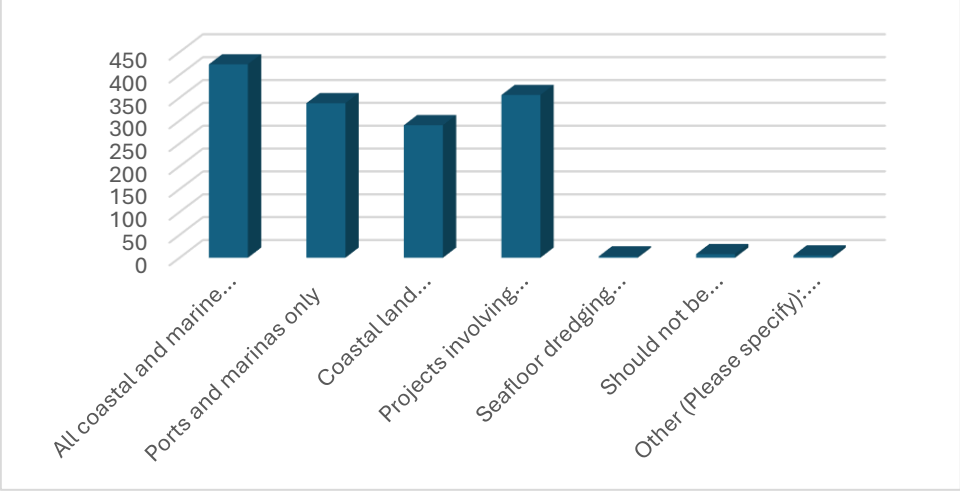
17. What do you think are the main reasons why aquatic plants are not adequately considered in EIA processes?



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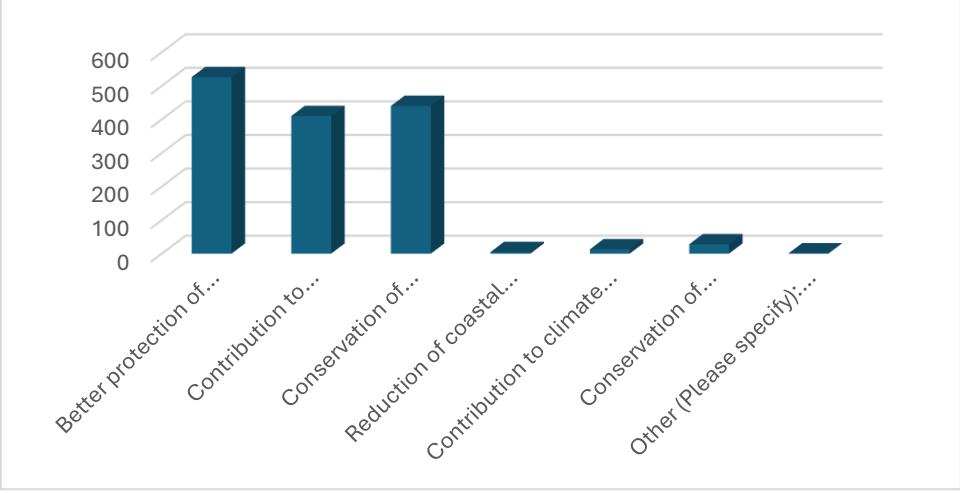
18. In which types of projects should the inclusion of aquatic plants in EIA processes be mandatory?



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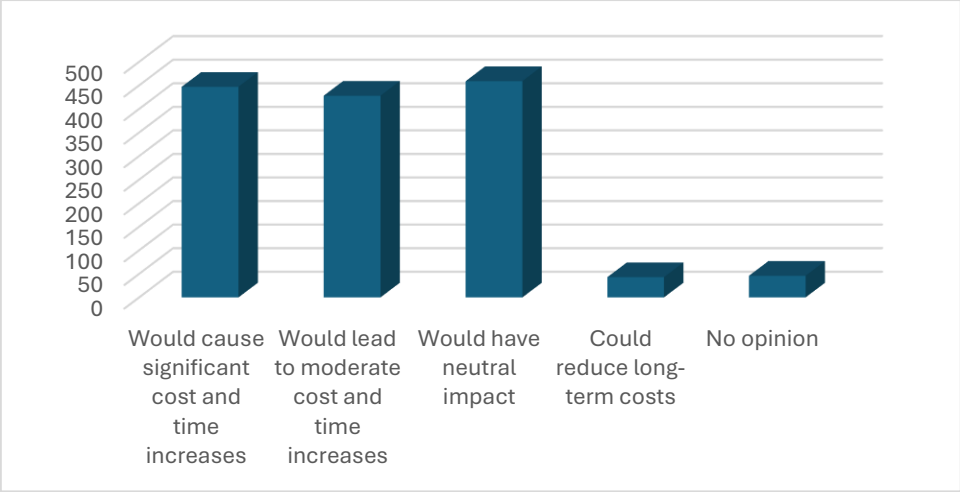
19. What do you think is the most important advantage of including aquatic plants in EIA processes?



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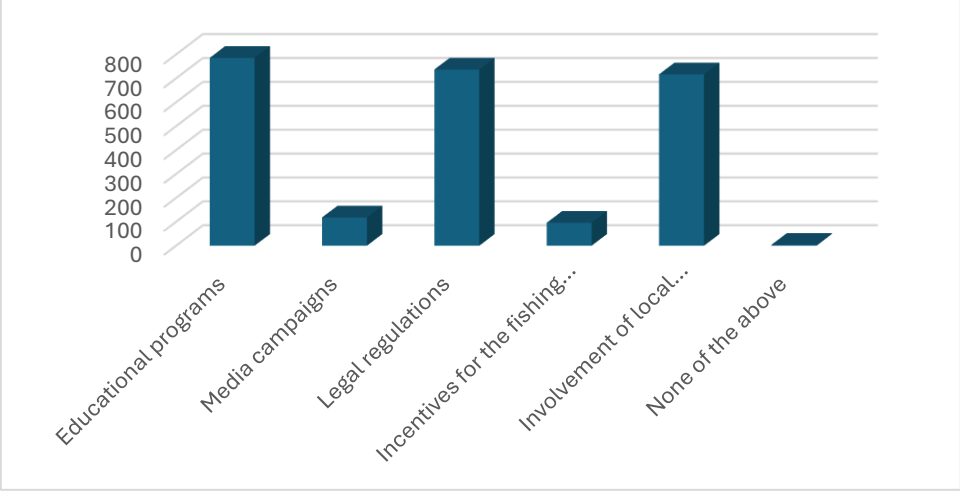
20. What could be the impact of including aquatic plants in EIA processes on project costs and timelines?



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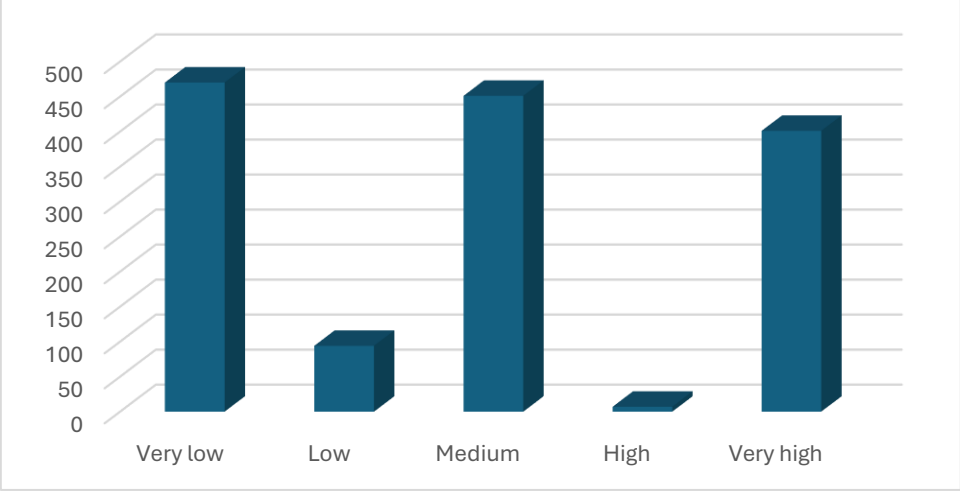
21. Which strategies do you think would be most effective in raising public awareness about aquatic plants conservation?



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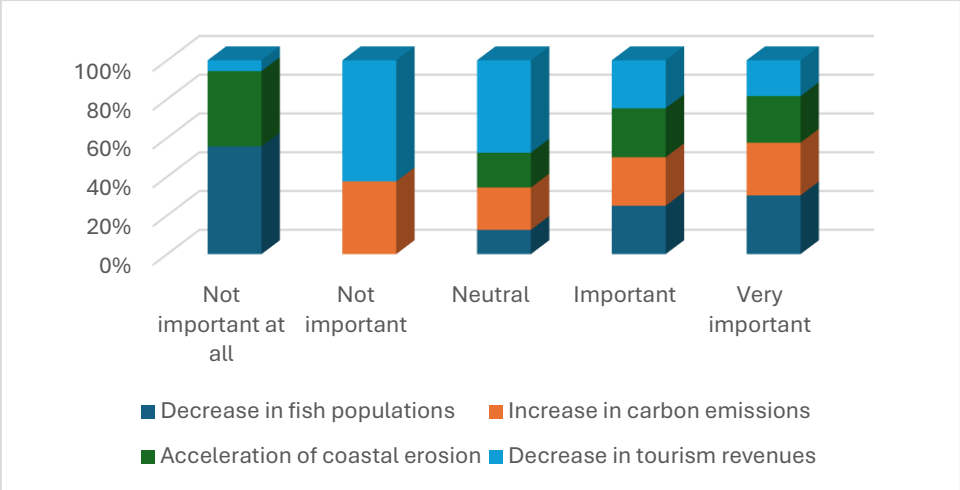
22. What do you think is the awareness level of decision-makers (politicians, senior bureaucrats, etc.) regarding the importance of aquatic plants?



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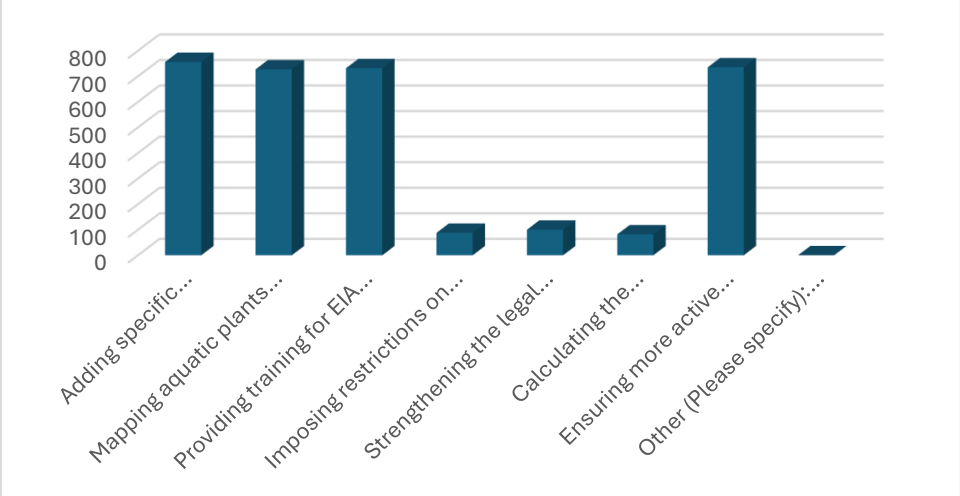
23. How important do you consider the following consequences of the loss



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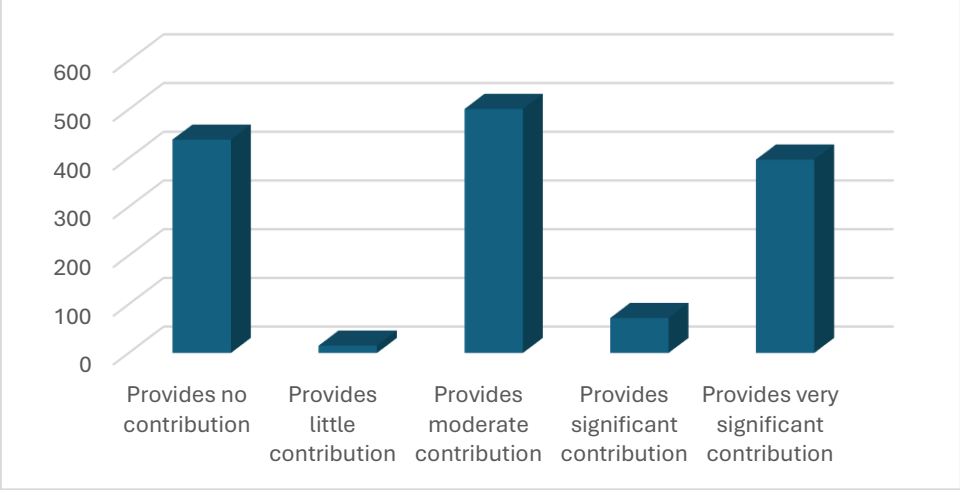
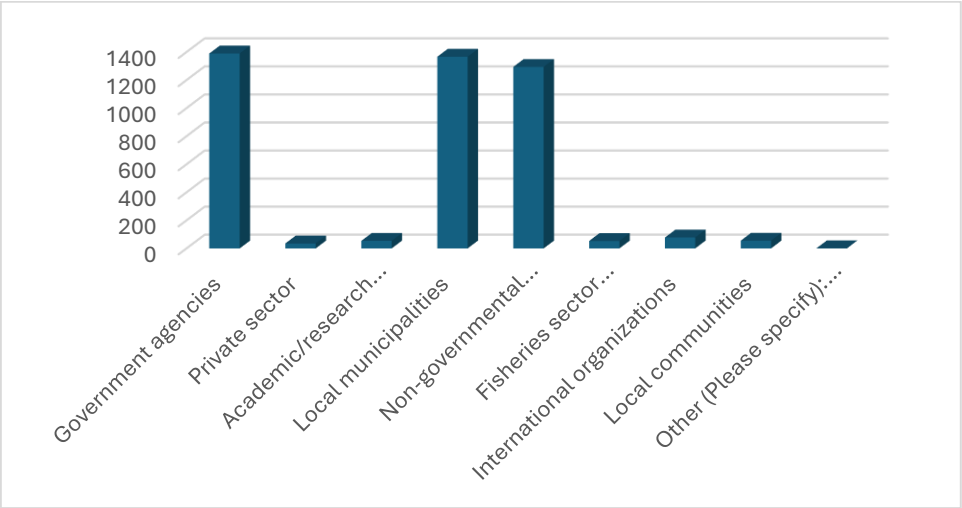
24. Which of the following suggestions do you support for more effective consideration of aguatic plants in the EIA processes?



25. How much do you think the inclusion of aquatic plants in the EIA processes will contribute to the protection of coastal and marine ecosystems?



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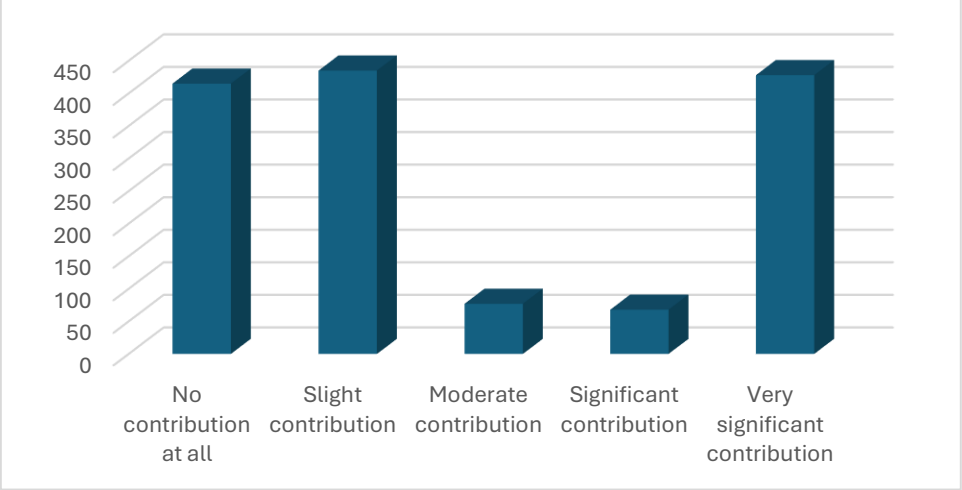
26. Who should be the most important stakeholders in the process of including aquatic plants in EIA procedures?



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27. To what extent would the inclusion of aquatic plants in EIA procedures contribute to overall environmental protection policies.

Key Finding

Awareness and knowledge gaps

Overall awareness of aquatic plant ecosystems in R. of Moldova is limited. Approximately half of respondents rated public awareness regarding aquatic macrophytes as *"low"*, and only a very small fraction claimed to have *"very high"* personal knowledge about these plants. In fact, many participants admitted their familiarity with aquatic plants' ecological roles was moderate at best. This is reflected in the finding that a significant portion of respondents were uncertain about certain functions of aquatic vegetation – for example, many were unsure about the extent of climate change mitigation benefits (blue carbon sequestration) provided by seagrasses and other aquatic plants. Such indecision indicates knowledge gaps in more specialized topics. Fewer respondents were aware of other services like carbon sequestration or coastal protection, suggesting that public

knowledge is skewed toward the more visible benefits (like habitat and water clarity) and that the "blue carbon" role of these plants is not well-known. Taken together, the findings show a clear need for improving awareness: even within an environmentally inclined sample, understanding of aquatic plants' full ecological importance is uneven, and the general public's awareness is perceived to be even lower. *"The population needs to be widely informed about the risk of losing these plants."*

Ecological importance and perceived impacts

The survey results underscore that stakeholders who are aware of aquatic plants strongly value their ecological roles. A large majority agreed that aquatic macrophytes and seagrasses are **critical to healthy aquatic ecosystems**. Participants frequently mentioned that these plants contribute to maintaining ecological balance – by oxygenating water, providing food and shelter for aquatic life, and buffering environmental changes. For instance, several respondents described aquatic plants as **natural indicators** of ecosystem health and as vital components of the aquatic food web. One expert noted that aquatic plants serve as important sentinels: their condition can signal early signs of problems such as pollution or eutrophication, long before other indicators become evident. There was also widespread acknowledgement of the consequences if these plant habitats are degraded or lost. Most respondents believe that the disappearance of aquatic plant beds (whether in freshwater rivers/lakes or marine coastal areas) would have *very serious impacts* on biodiversity and human well-being – including declines in fish populations, increased coastal erosion, and loss of water quality. These opinions align with ecological research, which shows that degradation of macrophyte and seagrass habitats can trigger cascading effects on fisheries and shoreline stability. The strong consensus on ecological importance explains why **support for integrating aquatic plants into EIA was so high** across the board. Many respondents expressed that considering impacts on aquatic vegetation in project assessments is not only ecologically necessary but also beneficial for long-term resource management. In the words of one respondent: *"Including aquatic plants in Environmental Impact Assessment (EIA) processes is essential, as they play a critical role in maintaining the balance of aquatic ecosystems."*. By bringing aquatic flora into the EIA scope, stakeholders expect that project planning will better address issues like habitat connectivity, invasive species spread, and water quality protection. Indeed, respondents highlighted that systematically evaluating aquatic plant impacts could enable early detection of ecological imbalances (e.g. nutrient pollution) and improve the design of mitigation measures. This finding suggests that stakeholders see the integration not as a bureaucratic hurdle, but as an opportunity to enhance environmental oversight and sustainability of development projects.

Attitudes toward EIA integration

The survey revealed **overwhelming support** for formally integrating aquatic plants into EIA procedures. Nearly all participants agreed with the proposition that aquatic plant considerations should be included in environmental assessments for relevant projects. Only a statistically negligible number of respondents disagreed with this idea (fewer than 1% responded negatively), and roughly two-thirds **"strongly"** supported it outright. Even those who did not explicitly say "strongly agree" tended to indicate moderate support or no opposition – indicating there is essentially no resistance among the surveyed stakeholders to this integration. The motivations for support were grounded in both environmental and social reasoning. Respondents believe that factoring aquatic plants into EIAs will lead to more **comprehensive evaluations of project impacts**, ensuring that habitat destruction or water quality degradation affecting these plants are not overlooked. The most commonly cited advantage of including aquatic flora was the **better protection of aquatic**

ecosystems that would result. Many respondents felt this step would strengthen conservation of wetlands, seagrass meadows, and other sensitive areas, ultimately benefiting fisheries, tourism, and climate resilience. A majority indicated that any potential increase in assessment scope is justified by the ecological benefits; notably, concerns that adding aquatic plants to EIA might excessively increase the cost or duration of assessments were minimal. In fact, fewer than about 5% of respondents felt that considering these factors would be a significant burden. Instead, many pointed out it could *save costs in the long run* by preventing environmental damage. Respondents also see EIA integration as a way to raise awareness during the project planning process itself – both for developers and for the public. For example, one respondent stated that aquatic plants "should be treated as essential components of the ecological assessment," serving both as impact indicators and as part of mitigation/remediation solutions. This illustrates the prevailing view that EIA can be a proactive tool: by explicitly evaluating aquatic plant impacts, project proponents might be encouraged to incorporate design features that avoid or compensate for harm to these valuable plant communities (such as adjusting a shoreline project to spare a seagrass bed, or replanting macrophytes after construction). It is worth noting that a portion of respondents (around 30%) identified themselves as unsure or neutral on some questions – which likely correlates with the earlier-noted gaps in detailed knowledge. But importantly, even among those who were less confident, **there was virtually no active opposition** to the idea. The qualitative comments further reinforce that both experts and lay participants view the inclusion of aquatic plants in EIAs as a **commonsense evolution** of environmental policy in Republic of Moldova.

Perceptions of legislation and policy gaps

A striking finding of the survey is the near-universal sentiment that **current legislation does not sufficiently cover aquatic plants**. When asked about the adequacy of existing legal protections and EIA requirements regarding aquatic vegetation, almost nobody responded that the status quo is sufficient. In fact, effectively 0% (only a handful of individuals) agreed that the legal framework is adequate. Over half of respondents explicitly stated that the present regulations are *insufficient*, and the remainder were unsure – often admitting they were not familiar with any provisions addressing aquatic plants, which in itself points to the lack of clear regulations. This indicates a strong perception of a legislative gap. Many participants commented that while Moldovan environmental laws and EIAs address water quality and fish fauna, they **make little to no mention of aquatic flora** specifically. Aquatic plants tend to be an "invisible" element in impact assessments unless they are part of a protected habitat, and even then, they may be overlooked. On the question of **barriers** to integrating aquatic plants into EIAs so far, the survey feedback points to informational and institutional factors rather than technical infeasibility. The dominant reasons perceived were a **lack of awareness or knowledge** among decision-makers and practitioners, and the absence of explicit legal mandates – not so much a lack of funds or excessive effort. Finally, respondents stressed the need for **education and stakeholder engagement** as part of improving the policy. Several comments advocated for developing educational materials and training programs for both the public and officials.

In summary, the survey paints a picture of a policy landscape in Republic of Moldova that is currently insufficient for aquatic plant protection, but with a clear mandate from stakeholders to address this gap through regulatory updates, guidance development, and increased awareness.

Recommendations

Drawing on the survey findings and the respondents' own suggestions, the following recommendations are proposed to enhance the integration of aquatic plants into EIA and strengthen their protection in Republic of Moldova:

- Strengthen legal framework;
- Develop standardized assessment guidelines;
- Engage specialized expertise;
- Enhance research, monitoring and data integration;
- Raise awareness and educate stakeholders.

By implementing these recommendations, Republic of Moldova can improve the integration of aquatic plants into environmental assessments and decision-making. In turn, this will contribute to more sustainable management of aquatic ecosystems in the Black Sea region and beyond. The survey demonstrates a strong stakeholder mandate for action – the challenge now is for policymakers, scientists, and communities to collaborate in elevating the profile of aquatic plants in environmental planning. Adopting the strategies above will help close the legislative gap, leverage scientific expertise, and foster a more **informed, proactive approach** to safeguarding vital blue-green ecosystems for future generations.