PMG Response to Comments on Rogun HPP CIA
submitted by Rivers without Boundaries International Coalition (9 November 2025)

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1	1. Introduction and Analysis of TCIA Scenarios This report presents an independent analysis of the Transboundary Cumulative Impact Assessment (TCIA) for the Rogun HPP Project. The analysis evaluates the document's alignment with the World Bank Environmental and Social Framework (primarily ESS1) and the IFC Good Practice Handbook on Cumulative Impact Assessment (2013). The text is complemented by a table presenting the potential consequences of different scenarios of future development.	No response needed
2	The TCIA identifies critical "Valued Environmental Components" (VECs) and incorporates external stressors, notably the Qosh Tepa Canal. However, the assessment is fundamentally flawed by its reliance on a static "post-Nurek" baseline and the omission of critical government strategies and alternative operational scenarios.	Qosh Tepa is not understood as an external stressor. Rather, it is included as an "other development" according to the World Bank CIA definition. The CIA is based on the results of the 2014 and 2025 ESIAs for the Rogun HPP, with the main result that the Vakhsh cascade with Rogun will be operated without any additional shift of water from summer to winter, and that in any case Tajikistan would use its full share of water allocated to it by Protocol 566, initially to fill the Rogun reservoir and then for irrigation. Theoretically possible alternative scenarios and their consequences are included in the analysis.
3	While it is superficially compliant with the first procedural steps of CIA guidance, the document erroneously characterizes the Rogun HPP as having a "neutral" cumulative impact on downstream ecosystems. This conclusion ignores the fact that Rogun Reservoir will extend the operational life of the Vakhsh Cascade by 60–100 years, thereby perpetuating the degradation of the Tigrovaya Balka	The assessment's baseline is grounded in current conditions, as predicting independent, future conservation initiatives for Tigrovaya Balka falls outside the scope of the Rogun evaluation. It is correct that Rogun will significantly delay the siltation of the Nurek reservoir. From an infrastructure and safety standpoint, this extension is a critical necessity; it provides the region with the vital lead time

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	World Heritage Site for up to a century longer than the current baseline (silting of Nurek Reservoir) would allow.	required to engineer a safe water-passage solution for Nurek before its existing tunnels are permanently obstructed by sediment.
4	In Table 1, we addressed gaps and discrepancies in the TCIA scenarios using only two VEC examples, both of global biodiversity value: Tigrovaya Balka Nature Reserve (World Heritage site) and the Ramsar wetlands of the Amu Darya Delta. For clarity and a more complete picture, we split Scenario 2 into filling (2a) and operation (2b). We also added the "Harmonious Development Scenario" (Scenario 6), which was central to the World Bank's 2014 findings and is mentioned in the 2025 ESIA. After scenario analysis, we proceed to analyze the TCIA's compliance with the IFC CIA Guidance (Section 2) and then its compliance with the World Bank's ESF (Section 3). Large-scale unmitigated impacts on natural and critical habitats and endangered species will result from omitting and downplaying those in the TCIA (and ESIA as a whole) unless it is brought to compliance with requirements of the World Bank Group's standards. The review conclusions highlight six key recommendations for bringing the TCIA and respective other parts of the ESIA into compliance with the World Bank Group's safeguard standards.	See responses to Table 1 Comments (Part 1)
5	2. COMPLIANCE ANALYSIS AGAINST IFC CIA GUIDANCE (2013) The IFC Handbook prescribes a six-step process for CIAs. The TCIA follows this logic but exhibits critical deficiencies in data quality and scenario selection.	See responses to the following comments

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6	2.1. Step 1 & 2: Scoping, VECs, and Spatial/Temporal Boundaries The TCIA appropriately delineates the Area of Influence (AoI) to the full Amu Darya basin, but all other aspects are flawed.	See comments to the following comments
7	2.1.1. The temporal boundaries are manipulated to obscure long-term cumulative impacts. The temporal scope is defined as inappropriately short: “Operational impacts (from 2032) will be assessed for the full operation and inundation of the Project expected by 2038” (Section 5.3.2), while elsewhere the TCIA acknowledges that according to the IFC CIA Guidance, "temporal boundaries of the CIA were defined by the expected life span of the Project" (Section 2.3). The temporal scope to be considered for the operations of Rogun HPP should be its minimal lifespan of 115 years, which is listed in the TCIA as a major advantage of the project and the key criterion for the selection of the tallest dam from among alternatives.	The quoted text and reference to Section 5.3.2 do not appear in the TCIA and may have been drawn from the broader ESIA document. To clarify the temporal boundaries established in the TCIA, Section 2.3 defines them as 'the expected life span of the Project.' Regarding the timeline mentioned, the year 2038 refers specifically to the anticipated completion of reservoir filling, whereas the operational phase and its associated assessments extend throughout the full lifespan of the facility.
8	2.1.2. The TCIA identifies “Water Availability” as the primary VEC (Section 3.2.1), specifically water (quantity, accessibility, availability) for the local population. However, beyond that, the TCIA hardly contains any description or analysis of the receptor—the potentially affected local communities downstream of the dam cascade.	In Section 3.2.1, the TCIA states: “The VC or the direct receptor, in this case, would be water (quantity, availability, accessibility), which in turn would affect water uses, mainly irrigation systems in the downstream area, and the population depending on irrigation and therefore on water resources (indirect receptors or VCs).”
9	2.1.3. Biodiversity VECs are poorly defined. The "Aral Sea" is treated as a lost cause rather than focusing on the Amu Darya Delta wetlands (Ramsar sites) which rely on specific inflow requirements and management system. "Fish migration" is a generic notion, again ignoring receptors—the ecological requirements of endemic and	The fact that the Amu Darya Delta wetlands are not explicitly mentioned could be seen as a shortcoming of the report. At the same time, it should be noted that this is not the report's main objective. However, the overall conclusion is that Rogun (unless defined otherwise in the future, which would require a corresponding agreement among the riparian states) will not change the flow

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	endangered species like the Pike Asp and Amu Darya Shovelnose Sturgeon.	conditions, and especially seasonal water distribution, in the downstream area. This means that the situation of these wetlands will not be changed by Rogun. The same is the case for fish migration.
10	2.2.1. Lack of Climate Change Data. The TCIA has seven lines dedicated to climate change without any specific characterization of already occurring changes or references to a more detailed assessment. The overall ESIA also has very little relevant up-to-date information on climate change and does not contain a review of recent basin-specific studies. The TCIA report ignores recent SIC ICWC data (2019–2023) showing a declining trend (-1.3 km3 or 6%) in Vakhsh River flow. Meanwhile, climate change effects are essential components for any future development scenario.	It is important to note that Tajikistan is allocated only a small minority portion of Amu Darya/Vakhsh River flows. In general, any reduction in Vakhsh River flow and changes in allocations would be the subject of discussions and agreements among the riparian countries, and Tajikistan will remain within its duly allocated “share”. The 2025 ESIA includes additional information on anticipated climate change.
11	2.2.2. Absent Ecological Baseline. There is no up-to-date baseline study for the Tigrovaya Balka World Heritage site or Amu Darya Delta wetlands, and no data on the specific eco-hydrological requirements of endangered fish, etc. The assessment relies on fragmented, anecdotal evidence. The wider ESIA also does not include baseline studies on the biodiversity of any areas downstream of Nurek HPP or its eco-hydrological requirements (environmental flow requirements).	Indeed, none of these areas is analysed in any detail. However, the following needs to be considered: “The cumulative impact of the project is the incremental impact of the project when added to impacts from other relevant past, present and reasonably foreseeable developments …” (WB 2017:18); similar definition by IFC (2013:19). While both ESIAs (2014 and 2025) come to the conclusion that the one relevant VC, water availability, will not be affected by Rogun, neither of them comes to the conclusion that the situation in TB or the Aral Sea is good; the only conclusion is that it will not be deteriorated by Rogun (and neither will it be improved).
12	2.2.3. Socio-Economic Baseline Lacking. Neither the TCIA nor the wider ESIA includes baseline studies on the socio-economic conditions of local populations in any areas downstream of Nurek HPP. Thus, impacts of the Project on rural populations in those areas	See response to comment 11

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	remain unassessed. For example, the ESIA claims that Tajikistan will not use additional water for irrigation until it fills Rogun Reservoir (Scenario 2(a)). If taken at face value, this necessitates an inquiry into the social impacts of such a decision on local communities dependent on irrigation along Lower Vaksh River and possible secondary impacts (e.g., an increased number of migrant laborers).	
13	2.2.4. Ignoring governmental plans and governance structures. 2.2.4.1. The TCIA ignores the Tajikistan National Water Management Strategy until 2040 (approved in November 2024). This strategy envisions an increase in water consumption by 1.3 km, with at least two-thirds likely to be withdrawn in the Amu Darya Basin, and a 50,000 ha expansion of irrigated land. This directly contradicts the TCIA assumption that Tajikistan will stay within current quotas (Scenario 2(a)).	No, this actually confirms the statements (not assumptions) that Tajikistan will stay within current quotas: average of 1.36 km³ not used (2010 to 2024, Table 9.1) and intention to increase irrigation by up to 100'000 ha (Section 6.1.1). As noted, the use of the previously unused portion of Tajikistan's allocation for irrigation has been postponed until the Rogun reservoir reaches its full supply level. Tajikistan will remain within its "current quotas".
14	2.2.4.2. Discussing the "Aral Sea," the TCIA reveals that its authors are unaware that water supply into remnant wetlands is mandated by the same water-sharing agreements and managed by a special branch of the same agency which governs the ICWC, supported by the GEF, UNDP, and several multilateral donors. The TCIA ignores multiple recent studies on the environmental flow requirements of specific wetlands in the Amu Darya Delta. Instead, it reports that an inquiry was sent to a project working on the Northern Aral in the Syr Darya Delta in Kazakhstan – completely different river basin. In other words, the TCIA failed to identify and analyze current ecological status, water management objectives, governing policy mechanisms, and institutions managing water	It is true that the TCIA did not go into any details of management of the wetlands in the Aral Sea delta. However, since the ESIAs show that Rogun HPP will not change flow, and mainly seasonal flow distribution downstream of the Vakhsh cascade, going into these details would not make any difference.

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	delivered to the remnants of the Aral Sea in the Amu Darya Basin.	
15	2.2.4.3. The most striking failure of the TCIA and Updated ESIA at large is the lack of objective analysis of current practices and problems in the complicated system managing water-sharing agreements based on Protocol 566. In 2014, at the end of the ESIA process which is now being "updated," the ESPOE, in its final report, emphasized: "The legal analysis contained in the ESIA (Chapter 8) shows that these water sharing instruments are agreements, declarations or practices rather than treaties, that they lack provisions for monitoring and enforcement; and provide no dispute resolution mechanisms. The E&S PoE notes that the legal and technical basis for the BWO and ICWC water quotas to countries lack clarity ... Although generally appearing acceptable by the countries involved, current annual water allocation practice thus remains vague and unenforceable and is not amenable to objective resolution in cases of dispute." This is even more true ten years later. Since 2014, water management in the region has been complicated by accelerated climate change, significant population growth, armed conflicts between upstream basin countries, and the partial departure of some riparian countries from key water management mechanisms. Nevertheless, the TCIA and ESIA do not contain an objective, impartial assessment of the current functioning and effectiveness of the ICWC and related mechanisms. The only exception is the TCIA mentioning in passing that ICWC decisions on water allocation to the "Aral Sea" are not fully implemented (and therefore water supply to the "Aral Sea" is not worth the effort to assess and mitigate). As the TCIA	The objective of the TCIA is to analyse "the incremental impact of the project when added to impacts from other relevant past, present and reasonably foreseeable developments" (World Bank 2017), "the project" here being Rogun HPP. A detailed analysis of practices and regulations governing water management in the Amu Darya basin, while it could be valuable for purposes of regional water management, is not specifically relevant to the Rogun project, which will not affect such management. The description of the situation provided by the 2014 ESPOE is certainly correct. The importance of these regulations is highlighted in the TCIA, and mainly their major shortcoming, which is that Afghanistan is not part of these agreements. It is considered that actions by the downstream riparian countries are beyond the scope of the ESIAs and TCIA for the Rogun project since Rogun will have no effect on these actions. The major element of the agreements that are relevant to Rogun are the allocations agreed for Tajikistan, and both the ESIA and TCIA emphasize the fact that Tajikistan has remained in compliance with the agreements. It is acknowledged that adhering to "Protocol 566 does not guarantee absence of negative impacts on this biodiversity." However, it is also the case that Rogun will not contribute to or otherwise affect those negative impacts.

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	Consultant points out the fact that less water is delivered to Aral wetlands than is decided by the ICWC, why does he fail to analyze which weaknesses in international mechanisms lead to this violation? Besides, neither the TCIA nor the ESIA acknowledge the important fact that Protocol 566 and related agreements have a political and economic nature and were not designed to safeguard the biodiversity of rivers and floodplains. As a result, this biodiversity is in decline and Rogun will be a major addition, cementing this degradation for a century. Adhering to Protocol 566 does not guarantee absence of negative impacts on this biodiversity.	
16	2.3. Step 4 & 5: Assessment and Significance The scenario modeling is biased toward justifying the project rather than assessing actual risk. Main Gaps: 2.3.1. The report argues that because the Nurek HPP (existing downstream) acts as a barrier and sediment trap, Rogun adds no new negative impact to downstream biodiversity, specifically to the Tigrovaya Balka reserve (Section 6.2.2.3; Section 8.2). This neglects the fact that Rogun takes over the regulation function from Nurek and becomes the primary cause of recurring negative impacts (e.g., flood pulse alteration, sediment trapping). The TCIA argument relies on a "baseline" that is already degraded. IFC CIA Guidance (Section 1.1) states cumulative impacts result from "successive, incremental... effects." By constructing Rogun, the Project is effectively locking in the fragmented status of the river for an additional 60–100 years (Section 6.1.1), preventing potential future restoration that might occur if Nurek were decommissioned or managed differently.	The modelling is not biased toward justifying the project. Rather, it simply shows that the project can be operated as proposed. The main point is that concerning sediment retention, downstream flow regulation and the possibility of providing flood pulses for TB does not change due to Rogun. For the situation in TB, it is not relevant whether sediment is retained in Nurek reservoir or in Rogun reservoir. Whether anything that might happen beyond the life span of Nurek without Rogun is “in the reasonably foreseeable future” could be debated, particularly since a solution must be developed to deal with the fact that Nurek cannot continue to pass waters once the Nurek reservoir is filled. Therefore, it can certainly not be assumed that if Rogun would not be built the situation would remain unchanged.

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17	2.3.2. In Scenario 2 (a and b), the report wrongly argues Rogun is neutral because it operates within Protocol 566 water quota limits while filling Rogun and within ICWC mechanisms when limiting seasonal flow redistribution. However, the TCIA does not assess the likelihood/feasibility of staying within such limits against possible economic, political, and climate pressures. For example, Tajikistan staying within a quota of 9.5 km³/year is highly unlikely given the recent trends of growing consumption and decreasing flow, as well as the numerical objectives of Tajikistan's Water Strategy until 2040.	The TCIA include scenarios that show what would happen if Tajikistan were to fill and/or operate Rogun under conditions violating Protocol 566, and clearly demonstrates that this would lead to unacceptable impacts in the downstream area. While it seemed necessary to include such scenarios, it is important to note that Tajikistan has continued to adhere to its commitments under the agreements against *actual* "economic, political and climate pressures" for many decades, and there is no reason to assume that Tajikistan will not continue to respect the agreements with its neighbours. The Water Strategy does not imply a violation of the existing agreements; to the contrary, it shows that Tajikistan will continue to respect them (see response to comment 13 above).
18	2.3.3. Scenario 3 (Rapid Filling): The TCIA dismisses this as a "violation" and leaves it without in-depth assessment. Yet, this is a highly likely scenario. Given chronic construction delays and the need for financial viability, the Government of Tajikistan is likely to opt for rapid filling (3 years vs. 16 years). This would cause a serious ecosystem shock with major impacts on aquatic biota and water-using communities downstream, which are not adequately assessed.	The hypothetical scenario of a 3-year rapid filling is a physical and structural impossibility that directly violates established engineering constraints and the approved Operational Manual. Gradual filling is physically tethered to, and strictly dictated by, the dam construction schedule. Present development shows that gradual filling of the reservoir, in pace with dam construction, is already underway.
19	2.3.4. Scenario 4 (Additional Shift). This scenario involves shifting an additional 5 km³ from summer to winter to maximize electricity exports. The TCIA underestimates the impact, which would likely eliminate both the Tigrovaya Balka World Heritage site and Ramsar wetlands in the Amu Darya Delta due to altered seasonal flows. It declares this scenario impossible due to commitments by the borrower to adhere to ICWC decision-making. However, it fails to analyze under which circumstances Tajikistan may be forced to take its promise back. Meanwhile, a similar shift happened with the operations of Nurek, which in the difficult period of	Tajikistan has a documented history of compliance with existing basin-wide water allocation agreements, and the Rogun HPP operations are strictly bound by these commitments. The reference to the operational shifts at Nurek during the 1990s points to a period of unprecedented geopolitical crisis. Projecting this historical anomaly onto modern operations is disproportionate. Today, Central Asia operates under established international treaties, expanding regional energy markets, and rigorous oversight by international financial institutions. Therefore, modeling hypothetical scenarios based on the unilateral abandonment of international treaties falls outside the methodological scope of the TCIA. The assessment

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	the 1990s changed the operational regime despite the harm caused to downstream ecosystems and water uses.	does acknowledge that future climate pressures could prompt regional adaptations (e.g., utilizing the cascade for drought-relief releases), but executing such a shift would require new, formal consensus among all riparian states. Regarding downstream impacts on the Amu Darya Delta and Aral Sea wetlands, current ecological deficits are heavily influenced by existing basin-wide agricultural extraction practices and downstream irrigation inefficiencies. Because the Rogun HPP is designed to maintain the current hydrological baseline, it will not exacerbate these existing conditions. While the TCIA notes that modernizing regional irrigation networks is a recognized pathway to improving downstream water availability, evaluating and implementing third-party agricultural reforms is beyond the regulatory and operational mandate of the Rogun project.
20	2.3.5. Missing Scenario. The TCIA omits a scenario where Rogun is used for multi-year drought alleviation benefiting downstream nations (see Scenario 6: "Harmonious Development" in Table 1). This scenario was the focus of the World Bank's 2014 conclusions on the Rogun HPP Project, and "possible benefits to downstream countries in dry years" are mentioned throughout the ESIA. However, it is excluded from scenario analysis, limiting the assessment to conflict-prone scenarios.	This possibility was discussed in detail in the 2014 ESIA, and it is mentioned in the CIA.
21	2.4. Step 6: Management of Cumulative Impacts IFC CIA Handbook Step 6 (Management) states that "responsibility for [cumulative impact] management is shared" and requires "collaborative engagement" when individual project mitigation is insufficient. The TCIA has hardly a page of general words on this subject without any specific plans for collaborative engagement.	As described, Rogun will not change the situation in the downstream area, meaning that it has no impact and therefore no obligation for taking mitigating measures. Water management in the basin is definitely a collaborative effort, as described in the TCIA. The importance of the basin-wide agreements (however, so far without including Afghanistan) and the (potential) requirements for adapting them to the changing situation is pointed out in the TCIA.

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22	Main Gaps: 2.4.1. The primary mitigation strategy listed in the report is adherence to mechanisms established by Protocol 566 and related water-sharing agreements from 1992 and 1995 (Section 9.8). It states very vaguely: “Protocol 566 is the relevant framework... However, under changing conditions modifications of this agreement might be required” and then repeats several general recommendations which once were described in much greater detail in the 2014 ESIA. The World Bank, in its post-ESIA recommendations in 2014, emphasized that to be able to remain effective in water use coordination, those agreements should be complemented by agreements on seasonal and multi-year flow regulation for optimal use of the Vakhsh Hydropower Cascade with Rogun HPP. The TCIA, without any assessment of changes in the last 10 years, again recommends thinking about it in the future, while its task was to address those impacts now. The 2025 TCIA lacks any detail on the design and implementation of mitigation measures and has no references to specific mitigation plans.	The task was not “to address those impacts now.” The task in the ESIA and TCIA was to assess the impacts of Rogun, both impacts solely attributable to Rogun and cumulative impacts when combined with other projects and developments. The 2014 and 2025 ESIAs acknowledge and assess the impacts of Rogun alone and conclude that, with proper mitigation in the form of remaining within the water-sharing agreements, Rogun will not contribute to the cumulative impacts. The TCIA in particular does point out that the agreements could (and should) be modified to include Afghanistan and to allow for different mode of operation of the Vakhsh cascade to provide additional water in dry years (with the right to retain more water afterwards for refilling the reservoirs).
23	2.4.2. Problems of enforceability: Under IFC Guidance, mitigation should be technically enforceable. Protocol 566 is a political agreement without technical enforcement mechanisms and dispute resolution mechanisms. Along with water-sharing agreements, it was designed in the 20th century primarily to coordinate water-sharing, irrigation, and hydropower production, without detailed consideration of biodiversity conservation, environmental flow management, etc. It does not even have clear-cut mechanisms to fix certain shifts of river flow between seasons. Tajikistan’s “commitment” to suffer losses and preserve a Nurek-like	See responses above. The fact remains that Tajikistan has never used water beyond the amount allocated, and has committed to remain within the amounts allocated in the future.

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	water regulation regime which is not optimal for any riparian country (or biodiversity feature) is non-binding. The power purchase agreement with Uzbekistan as a "substitute" enforcement measure has not been properly assessed, while its effectiveness for water management and biodiversity conservation is highly questionable due to its narrow sectoral focus on energy. No technical enforcement mechanism is suggested or analyzed for that in the TCIA.	
24	2.4.3. No recognition and mitigation of major impacts. For example, TCIA Section 6.4.2.1 argues that upstream cascades are a positive cumulative impact because they trap sediment, extending Rogun's life. While potentially positive economically, sediment starvation downstream is a major ecological stressor. The TCIA should assess the negative cumulative ecological impacts of sediment starvation on the Amu Darya Delta and Aral Sea region, not just the positive economic impact on the dam's lifespan.	The storage of sediment in the Rogun reservoir will not lead to any change in the "sediment starvation" downstream of Nurek. The positive cumulative impact is due to the extension of the life of Nurek, which would allow time to deal with the situation that will prevail once sediment fills the Nurek reservoir.
25	2.4.4. Conflict between policies unmitigated. The TCIA is very superficial and not based on detailed knowledge of regional policy-making practices; it does not reveal, assess, or suggest mitigation measures for potential conflicts between policies and projects. Tajikistan's own Water Management Strategy contradicts its "commitment" to voluntarily restrict water use to historical quotas when filling the reservoir. This should be analyzed in the TCIA.	See response to comments 13 and 17 above.
26	2.4.5. The TCIA identifies Scenarios 3 to 5 as having a degree of impact on downstream Turkmenistan and Uzbekistan that "would clearly not be acceptable." But it offers no technical mitigation, only stating it would violate a "clear commitment" made by Tajikistan. Given financial and	As stated in the responses to similar comments below, the first step in the mitigating hierarchy is avoidance of the impact. This is being done by not adopting cascade operation patterns as described in scenarios 3 to 5.

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	other pressures and intersectoral competition, this is insufficient and has little to do with the technically enforceable mitigation requirement of the IFC.	
27	2.4.6. “Worst Case” Scenario 5 unmitigated. The report admits that Afghanistan (building the Qosh Tepa Canal) is not a party to ICWC/BVO agreements (Section 6.7.4). Therefore, the management mechanism for the most significant cumulative impact (water scarcity exacerbated by Qosh Tepa and Rogun) is currently non-existent. Section 9.8 (Recommendations) of the TCIA identifies the correct mechanism (diplomatic engagement). However, it lacks a concrete Adaptive Management Plan (as recommended in IFC Guidance Step 6) for the specific scenario where Afghanistan extracts maximum water (10 km3/y) while Rogun Reservoir shifts 9.5 km3 from summer to winter. IFC Guidance requires defining "triggers for specific adaptive management decisions."	See responses above. Rogun, or for that matter Tajikistan, has no means of mitigating any impact that may or will be caused by Qosh Tepa. The only way to address this point would be by integrating Afghanistan in the water management organisations, and this would need to be done by joint efforts of the riparian states. This is acknowledged in the TCIA. Regardless, the comment is erroneous when it attributes “significant cumulative impact” to Rogun, since Rogun will not affect downstream “water scarcity”.
28	2.4.7. Scenario 2b impacts are not mitigated. As discussed in sections 2.3.1–2.3.2, the TCIA (and ESIA) as a whole, based on (irrelevant) political assumptions, refuses to recognize and analyze the obvious cumulative impacts of the Vakhsh Cascade. Consequently, those most severe impacts on the most endangered biodiversity and the World Heritage site are intentionally denied mitigation actions. This is the most important flaw in the whole TCIA/ESIA related to biodiversity.	The TCIA does not “refuse to recognize the obvious cumulative impacts to the Vakhsh Cascade” but clearly acknowledges them. Indeed, the impact on TB was (mainly) caused by Nurek, impacts on the wetlands in the lower reaches of Amu Darya by the construction or the Karakum canal and the irrigation schemes in Turkmenistan and Uzbekistan. Rogun does not change this situation and can therefore is not responsible for mitigating the effects. The possibility of considering measures in TB as a biodiversity offset for the impacts on natural habitat upstream of Rogun were discussed during preparation of the studies. However, it was decided to focus offsets to the impacts that are attributable to Rogun (2025 ESIA, Volume 3, A04: Biodiversity Management Plan, Table

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		3-3 - BMP Actions) and primarily within the preferred “like-for-like” approach to offsets.
29	2.4.8. Mitigation measures denied for river habitat fragmentation on absurd grounds. Section 6.4.2 of the TCIA recognizes that Rogun HPP adds to river fragmentation by creating an additional barrier and by fundamentally changing habitat conditions on the entire length of its reservoir. It describes nine more planned dams destroying Surkhob and Obihingou natural river habitats and admits that those will also add to natural habitat fragmentation and alteration. And after that, the TCIA concludes: “Since these additional HPPs will be located upstream of Rogun reservoir, there will be no impacts on them stemming from Rogun” and removes the issue from further analysis and mitigation planning. Similar “logic” may exempt from assessment of cumulative impacts any next dam if it is being built upstream of other dams. In reality, habitat fragmentation and modification have basin-wide cumulative effects for aquatic biota and ecosystem processes whether they happen upstream or downstream. The TCIA’s argument clearly contradicts the IFC CIA Guidance and World Bank’s ESF, as it fails to recognize and mitigate cumulative impact at the basin scale as necessary.	The HPP cascades on Surkhob and Obihingou are potential HPPs that may or may not be built in the future, as are the ones listed for the Pyanj River. At present, they can be considered speculative and cannot be considered as “reasonably foreseeable developments”. Even if they do proceed, this will certainly not be before final commissioning of Rogun, which is foreseen for 2032, with full supply level reached in 2038. If constructed, these projects would undoubtedly cause impacts, which will have to be evaluated in the studies that would undoubtedly be prepared for these projects if and when they actually reach the next planning level.
30	3. TCIA COMPLIANCE WITH WORLD BANK ESF 3.1. Very limited analysis of impacts and failure to identify some impacts. ESS1 Para 32 (Cumulative Impacts): The assessment will consider cumulative impacts... from other relevant past, present and reasonably foreseeable developments. The TCIA (Section 4.3, Table 4-1) provides a long list of cumulative stressors, including the Vakhsh Cascade, the proposed Shurob HPP, upstream cascades	The TCIA focusses on cumulative impacts of Rogun in relation to impacts with other “reasonably foreseeable” developments. The development the upstream Obihingou/Surkhob cascade cannot be considered reasonably foreseeable at this time, nor can Shurob at its very early stage of consideration—if they are indeed developed, which is by no means assured, it would be decades in the future. Therefore, the TCIA rightfully did not consider their potential impacts. The continued development of the under-development Qosh Tepa Canal, on the other hand, is indeed reasonably

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	(Obihingou/Surkhob), and significantly, the Qosh Tepa Canal in Afghanistan. However, it fails to consider cumulative impacts from most of these stressors in any detail and does not provide any actionable mitigation recommendations.	foreseeable, and TCIA points out the (potential) severe effects of this development. As long as Rogun does not change the situation, there is no incremental effect of Rogun in the cumulative impacts of reasonably foreseeable developments. Even so, potential solutions, or at least efforts for minimising the impacts of such developments, are described in the TCIA. These include including Afghanistan in the basin water management agreements, upgrading existing irrigation schemes, and possibly changing (by means of an international agreement) the operation pattern foreseen for Rogun by enabling it to increase its role as storage scheme for downstream water requirements.
31	Main Gaps: 3.1.1. Biodiversity values, natural ecosystem processes, and services modified due to the development of the Vakhsh Hydropower Cascade are largely unaddressed, which makes it impossible to correctly identify cumulative impacts and the eco-hydrological requirements of impacted biodiversity VECs. The same relates to information on changes in environmental conditions for local communities, especially in Karakalpakstan. The TCIA (and ESIA) contains only general, partly inaccurate information on the initial pre-cascade baseline, changes due to water infrastructure development, and related impacts. It simply denies any impact from the Rogun HPP without any proper analysis of the past developments.	The past developments are well known and documented, and their impacts are acknowledged in the TCIA. However, the points addressed here have developed in this way because of these past developments (see response to comment 28 above), not due to Rogun, and Rogun will not add to those impacts.
32	3.1.2. Currently experienced and foreseeable climate change impacts are not considered in any detail, nor are they reflected in the scenario analysis as a factor of its own. Any clear arguments relate only to the Rogun HPP “climate	The impacts of climate change on Rogun, and of Rogun on climate change, are assessed in the ESIA. It is not expected that Rogun

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	adaptation value" for infrastructure without analysis of the environmental and social consequences of such an "adaptation strategy."	would contribute to cumulative impacts of climate change (or vice versa), so they were not assessed in detail in the TCIA.
33	3.1.3. Scenario 4 with a seasonal water shift is not using the maximum volume of the Vakhsh Hydropower Cascade; such a possibility is only mentioned in passing, but not assessed or mitigated.	While this is accurate, there are any number of additional scenarios that could have been included, but the selection of scenarios that are actually discussed show why any (marked) deviation from the chosen operation pattern would lead to undesirable impacts.
34	3.1.4. The omission of the up to 1.3 km³ additional water withdrawal for 50,000 ha irrigation expansion in Tajikistan's "National Water Management Strategy 2040" constitutes a failure to assess reasonably foreseeable developments.	This simply confirms the intention of Tajikistan to use its full water allocation while still remaining within the agreements. As noted in previous responses, this increase of water use for irrigation is being delayed until after Rogun reservoir reaches full supply level. This is fully addressed in the TCIA.
35	3.2. Failure to Assess Impacts Main Gaps: 3.2.1. As mentioned in Part 2, the temporal dimensions of Rogun HPP impact on downstream ecosystems are not considered, despite its obvious role in the proliferation of the worst impacts on biodiversity for the next 100+ years, far beyond the service time of the currently existing hydropower cascade in a baseline scenario. For example, the TCIA frames the trapping of sediment by Rogun as a positive benefit (extending Nurek's life). However, under ESS1, this must be assessed as a cumulative impact. Without Rogun, Nurek would significantly silt up by 2050, potentially gradually restoring natural sediment flows and flood regimes. Then Nurek Dam will have to be decommissioned as it cannot withstand extreme flows. Rogun extends the duration of factors leading to ecosystem degradation by 60–100 years. This temporal cumulative impact—a century of delayed restoration—is unassessed.	To assume that in the absence of Rogun Nurek would be decommissioned by about 2050 and the original situation would then be restored is structurally and methodologically flawed. Tajikistan depends on hydropower for electricity supply, and in a case "without Rogun" other solutions would have to be found. In addition, it is important to consider that Nurek has no surface spillway. When sediment fills Nurek reservoir, water will not be able to pass through tunnels and some solution must be found to allow water to pass safely. Rogun will provide time to develop and implement a solution

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36	3.2.2. The TCIA fails to assess cumulative impacts from fragmentation and transformation of the Upper Vakhsh basin main watercourse caused by Rogun and the planned cascade with nine new dams upstream of it. It fails to address those impacts in a context of successive Vakhsh Cascade development. Similarly, the consultant fails to address the same changes that could be caused by a cascade on the Panj River planned in the more distant future. Meanwhile, fragmentation/habitat conversion will be caused by the cumulative impact of already existing dams, the Rogun HPP project, and planned dams, and should be assessed at the Upper Amu Darya basin scale to design and recommend early measures to preserve exemplary free-flowing river ecosystems. In particular, the Panj River, which retains a free-flowing character over more than 1000 kilometers, is the most important aquatic biodiversity VEC, requiring mitigation measures. Instead, the TCIA refutes any necessity to consider the fragmentation issue based on a vague and scientifically invalid excuse.	See response to comment in 29 above concerning projects upstream of Rogun. If indeed the possible projects on the Pyanj become reasonably foreseeable, a strategic assessment of the cumulative impacts would become advisable. However, even if the projects were reasonably foreseeable at this time, there would be no obligation for Rogun to conduct such an assessment since it will not contribute to the impacts downstream of Nurek.
37	3.3. ESS1 Mitigation Hierarchy (Avoid, Minimize, Restore, Offset) The report argues that "avoiding" additional summer-to-winter water shifts (Section 6.2.2.3) satisfies the hierarchy. The reliance on Nurek's current operational regime (which already harms downstream ecosystems) as a justification for Rogun's "neutrality" minimizes the Project's responsibility to contribute to cumulative solutions, rather than just avoiding cumulative additions. The TCIA/NNLP explicitly reject using Rogun's storage (10.5 km³) to simulate flood pulses for Tigrovaya Balka restoration, despite the physical capacity to do so. This is a failure to apply the Mitigation Hierarchy	We respectfully differ with this interpretation of the Mitigation Hierarchy in this specific context. Rogun cannot be held responsible for impacts that were caused 50 years ago by Nurek. If there were an incremental impact from Rogun (e.g. by shifting additional water from summer to winter), then Rogun would be responsible for this impact and for its mitigation, and for a detailed assessment of the cumulative impacts of Nurek and Rogun. This, however, is not the case, as Rogun will not affect flows downstream of Nurek. As mentioned above, it was discussed whether to "simulate flood pulses" or to undertake other biodiversity offset measures as part of the measures to be carried out by Rogun. Indeed, the possibility of releasing water from Nurek to "simulate flood pulses" has been

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	(Restore). This clearly contradicts the intention of the whole ESF and many specific clauses (e.g., ESS6 requirement to identify opportunities to "enhance the conservation aims" (ESS6 Para 27(c)).	discussed at least since the 2014 ESIA. Such releases would need to be studied carefully to identify and mitigate potential adverse impacts, such as intruding upon developments in the floodplain that may have arisen since floods were substantially reduced after Nurek. This is considered to be worthy of further study but was rejected in order to focus mitigation on Rogun-caused impacts on natural habitat upstream of Rogun ((see response to comment 28 above).
38	3.4. Mitigation Gaps ESF (ESS1) requires the Borrower to manage risks and develop robust adaptive management plans for high-risk scenarios. ESS1 Para 36 requires the inclusion of major mitigation measures into the Environmental and Social Commitment Plan (ESCP). These requirements are not fulfilled in the TCIA.	It is correct that the ESCP does not require actions to address downstream impacts, since these are caused by other projects but not by Rogun. Such actions could be beneficial, but should not be part of Rogun's obligations.
39	3.4.1. Relying primarily on a treaty that a proponent of the major cumulative stressor (Afghanistan) has not signed and parties who signed do not fully implement (TCIA 8.1 Aral Sea) constitutes a gap in the management hierarchy defined in ESS1 Para 27. TCIA Section 9.7.4 suggests that Scenario 5 ("Worst Case") combines Rogun filling with the operation of the Qosh Tepa Canal. In the assessment, the report admits this would result in "permanently extremely dry summers like never experienced before" (Section 9.7.4; Executive Summary p. vii). The same is fully applicable to Scenario 4 when use of the maximum practicable live volume of the Vakhsh Cascade is considered. However, the mitigation strategy relies entirely on adherence to Protocol 566 (Section 6.6.2.3), while the report acknowledges that Afghanistan (Qosh Tepa) is not a party to Protocol 566	See responses to other comments on this issue above. Rogun has no responsibility to mitigate the actual and potential cumulative impacts of all projects. This goes far beyond what Rogun (or even Tajikistan on its own) could do, even if it had some obligation to do so. What Tajikistan and Rogun can and will do is to is to avoid (the first step in the mitigation hierarchy) the part of the cumulative impact that could be caused by Rogun, and this is done by not rapidly filling the reservoir and not shifting additional water from summer to winter.

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	(Section 5.2.1). No real mitigation action plan beyond a vague call to include everyone in the basin-wide agreements has been developed for what the authors of the TCIA consider the worst case. This is clearly unacceptable as mitigation of the “worst case” and should be replaced by mitigation action planning.	
40	3.4.2. Scenarios 3, 4, and 5 predict a 25%–50% reduction in water reaching the delta or a total shift to winter flows. This would affect Amu Darya Delta Ramsar Wetlands. The TCIA erroneously suggests winter flows might improve ecosystem health, a claim, likely, unsupported by ecological science regarding wetland vegetation cycles. Then the assessment accepts the degradation of these wetlands as inevitable under future scenarios rather than proposing environmental flows (E-flows) to protect them.	The descriptions of the scenarios clearly states that there are simplifying assumptions (as every scenario has to do). BVO Amu Darya allocates a certain amount of water to the Aral Sea, but how much water actually reaches the Aral Sea entirely depends on water allocation and use in Uzbekistan, not on Rogun. The important point here was to show that what Tajikistan releases is not directly correlated with what the Aral Sea receives. The E-flow from Rogun will affect only the 17km to the upper end of the Nurek reservoir, not the river and wetlands downstream of Nurek. It is beyond the scope of the Rogun ESIA and TCIA to propose an E-flow that could protect the Aral Sea wetlands, as it is the water uses in Uzbekistan (and to a minor extent, the releases from Nurek), that affect what reaches those wetlands. For this reason, as stated above, the TCIA (properly) did not specifically consider the wetlands in the Aral Sea delta.
41	3.4.3. Scenario 3 (Rapid Filling) in Section 9.7.3 identifies a high risk of significant downstream impact if the reservoir is filled in 3 years rather than 16. The mitigation for Scenario 3 is simply a statement that it would be a "violation of agreements" (Section 9.7.5). ESS1 requires robust adaptive management plans for such high-risk scenarios, not just a dismissal of them as unacceptable.	Phrased another way, the mitigation is to adhere to the agreements, which would avoid the impact. This could indeed constitute “robust management.”
42	3.4.5. Lack of Mitigation for the “worst case”.	

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	TCIA Section 9.7.4 describes Scenario 5 (Qosh Tepa + Rogun Filling) as the "worst case" resulting in extremely dry summers. The TCIA offers no technical mitigation for this scenario, only political commentary. The Project must develop a Drought Contingency Plan as part of the Operational Manual. This plan must define specific reservoir release thresholds (Adaptive Management) if the Qosh Tepa extraction exceeds estimates, prioritizing downstream environmental flows over power generation during the filling phase.	See response to comment 41. Dealing with the situation if the Qosh Tepa comes on line and begins major withdrawals is neither within the control of Rogun nor would be affected in any way by Rogun. Rogun cannot be responsible for developing a drought contingency plan, although such a plan could be part of future interstate consideration and agreement concerning releases from Rogun in drought years and recovery afterward. As noted previously, the TCIA recommends that Afghanistan be a party to riparian agreements, which would be a step toward overcoming future uncertainty.
43	3.4.6. Major cumulative impacts of Scenario 2b (intended “unchanged” operation regime of Vakhsh Cascade) are not addressed and mitigated at all despite causing degradation of a critical habitat. ESF (ESS6) requires a "net gain" for Critical Habitats. TCIA Section 8.3 states that Rogun will not change the flow regime downstream of Nurek, thus having "no additional negative effect" on the Tigrovaya Balka Nature Reserve (a UNESCO site). While hydrological modeling suggests flow stability (Section 6.2.3.5), ESS6 Para 24 requires a "net gain" for Critical Habitats. As Tigrovaya Balka is Critical Habitat (implied by UNESCO status), simply "not making it worse" may not satisfy the Net Gain requirement when viewed cumulatively. The TCIA mentions a potential “offset” (actually mitigation) strategy (Section 6.4.3) but notes it was eliminated from the Biodiversity Management Plan (BMP) even without a detailed feasibility assessment. The rejection of Tigrovaya Balka from mitigation (No Net Loss) planning (Section 6.4.3) also represents a missed opportunity for	A net gain for adverse impacts on critical habitats is required, and this is dealt with in the ESIA (BMP and NNL). However, this has to be done for critical habitats which are affected by the project at hand. Rogun will not affect any critical habitats, including those downstream of Nurek. As for natural habitat affected by Rogun, it was determined that the actions to achieve no net loss for impacts on natural habitats upstream of Rogun would be directed toward like-for-like offsets of the main natural habitat affected, Juniper forest. Neither no net loss nor net gain of habitats not affected by Rogun were considered. As noted in other responses, a program to protect and improve the habitats of Tigrovaya Balka would be beneficial and is recommended, but not as part of Rogun’s responsibilities since Rogun will not contribute to cumulative impacts.

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	cumulative impact management required under IFC CIA guidelines regarding "collaborative engagement" (IFC CIA Handbook, Step 6).	
44	3.5. Stakeholder Engagement The major failure of the TCIA is largely a result of the fact that the consultant used limited and biased information sources, contacted a very limited number of interested stakeholders and experts from riparian countries (if any), and intentionally avoided meeting concerned civil society representatives. This is a major violation of the ESF and its ESS10. Two key pieces of evidence:	The TCIA included the entire downstream area not primarily because of actual impacts caused by Rogun, but because of concerns that were expressed by stakeholders. This is consistent with the requirements of the ESF. For both the 2014 and 2025 ESIAs, there were multiple meetings which stakeholders in riparian countries, including civil society representatives, attended and expressed their opinions.
45	3.5.1. Biased selection of contacts to be consulted. TCIA Annex 1. “Meetings Held”. Out of 15 meetings, presumably focused on TCIA questions, the Consultant met 2–3 times with representatives of international financiers, 3–4 times with Tajik energy and hydropower officials not directly involved in the project, 2–3 times with Rogun HPP Project consultants focusing on environmental and social issues, and 6–7 times with Rogun HPP Project management officials. According to the TCIA report, he has not met with any independent environmental and social experts, CSOs, or (non-energy) state agencies inside or outside Tajikistan. This supports our understanding that the consultant had a biased, narrow view of the TCIA task (to justify the Rogun HPP Project) and fully avoided contacts with experts and stakeholders who possess up-to-date information and different perspectives/concerns.	See response to comment 44.
46	3.5.2. Improper “consultations” in Tashkent. On October 28, 2024, in Tashkent at “riparian consultations” organized by the project, the TCIA consultant made a brief	It is strongly disputed there is any “bias of the Consultant” and stands by the statement concerning the CIA. Independent experts

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	presentation in the absence of any draft TCIA documents available to participants. The inaccuracy and superficial approach displayed by this presentation was criticized by meeting participants. Subsequently, participating CSOs informed the World Bank about multiple violations of ESF ESS10 and other international norms and the inadequacy of such "consultations" in the absence of documents or a proper process (see Letter to the World Bank on improper consultations. 8 November 2024). The World Bank did not address specific CSO concerns on the obvious bias of the Consultant but promised, "The CIA being prepared is sound and well supported, and will undergo a review process, including disclosure for public comment…" (December 13, 2024, World Bank response to Rogun Alert Coalition). As a result, the Rogun HPP Project was approved immediately after the response before disclosure and appraisal of the crucial component of environmental safeguards: the TCIA.	have been welcome to review the TCIA, and we have welcomed and responded to comments on the various comments of the ESIA, including the TCIA, the RAP/LRP, and the BMP. It is recognized there are differences of opinion regarding the impact of Rogun. PMG in no way disputes the need to address the serious issues at Tigrovaya Balka and the Aral Sea. However, this should not be done through or by Rogun.
47	3.5.3. Absence of consultations with potentially affected local stakeholders. None of the consultations took place in riparian regions potentially affected by the cumulative impacts of Rogun HPP. In Uzbekistan, those are the Republic of Karakalpakstan and Khorezm Province, very far from Tashkent; in Turkmenistan and Afghanistan, no consultations happened whatsoever.	As noted, the riparian consultations were held in response to concerns expressed by stakeholders, not due to impacts in riparian countries as the project will not contribute to the impacts downstream of Rogun. There have been consultations with those stakeholders who have expressed concern—Governments and civil society—and even private citizens have had the opportunity to provide comments on the TCIA. Thus, the engagement process has achieved the purpose of ESS10. And moreover, consultations will continue throughout the project implementation.
48	4. Conclusions and Recommendations Volume 1, Chapter 23 of the TCIA is procedurally compliant with the scoping and assessment phases of ESS1 and IFC CIA Guidance. It demonstrates, albeit in a very general	We understand this comment refers to chapter 23 of the 2025 ESIA, which does indeed note the effect of water abstraction.

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	manner, the dire potential of cumulative water abstraction in the region (specifically Section 9.7).	
49	However, the document lacks baseline information on globally important biodiversity and is extremely weak on Management and Mitigation (Step 6 of IFC Guidance). It relies heavily on the assumption that existing international treaties (Protocol 566) and non-binding promises of the borrower are sufficient to mitigate potential negative impacts.	As noted before, Rogun will not contribute to the impacts downstream of Rogun. In the absence of impacts caused by Rogun, and therefore no incremental impact due to Rogun, there is no need for mitigation by Rogun. In general, impacts that could potentially happen, as described in the scenarios, are avoided.
50	To achieve full compliance, the Project must move from identifying these risks to establishing concrete, project-level adaptive management mechanisms to handle water shortages and satisfying eco-hydrological requirements, rather than deferring entirely to inter-governmental diplomacy.	The problems that exist, and the problems that are likely to arise in addition to them independently of Rogun, have necessarily to be addressed by “intergovernmental diplomacy”. However, that cannot be accomplished by Rogun. Rogun, if managed as described in the 2014 and 2025 ESIAs, and the TCIA, and according to intergovernmental agreements, will contribute to impact minimisation in the way discussed in the TCIA.
51	The Rogun TCIA contains the most significant non-compliance with the World Bank’s ESF: by framing the project as "neutral" relative to the downstream ecosystems, including the Tigrovaya Balka World Heritage site, it ignores the reality that Rogun locks in and extends the duration of catastrophic ecosystem impacts for over a century. It also fails to identify the World Heritage site as Critical Habitat and demonstrate “net gain.” The document also relies on optimistic scenarios regarding water consumption that contradict official government strategies and observed trends.	See responses above. Rogun will not have any incremental effect on downstream areas, including the critical habitat of Tigrovaya Balka. Also as noted in previous comments, the adopted scenario does not contradict government strategies or trends.
52	To bring the ESIA into compliance with financiers’ requirements and ensure that the Rogun HPP development does not cause irreparable harm at a basin-wide level and	See responses above.

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	does not lead to the extirpation of global biodiversity values, the following key measures should be undertaken:	
53	4.1. Mandate environmental flows (artificial floods) to restore Tigrovaya Balka. Formally assess the cumulative impact of extending the Vakhsh Cascade's lifespan by 100 years and its reoperation with Rogun becoming the lead flow regulator The Project should reconsider the decision to exclude Tigrovaya Balka from the Biodiversity Management Plan (BMP). The Project should evaluate the feasibility of coordinated environmental releases (artificial floods) in conjunction with Nurek to support the regeneration of the Tugai forests and other World Heritage values, rather than accepting their degradation as a static baseline. A collaborative offset program should be established to meet the "Net Gain" requirement for the river system's cumulative impact.	Flows from Rogun will not affect Tigrovaya Balka. There is no obligation to mitigate impacts of other projects. Unless Rogun contributes to those effects. However, as noted previously, a wider study of the potential adverse and positive effects of simulated floods would be a commendable approach and is recommended. It is noted this could be a formidable undertaking since it would need to consider whether there would be adverse effects on developments that may have intruded on the floodplain in the absence of major floods in the decades since Nurek was commissioned. An important outcome of such a study would be options for future agreements among the riparian states.
54	4.2. Mitigate river fragmentation and habitat loss. Assess the cumulative river fragmentation and habitat conversion by existing and planned reservoirs at the basin level (at least in the Upper Amu Darya basin) and design mitigation measures, including permanent protection of the most valuable free-flowing rivers as mitigation/offset for Rogun reservoir impacts (in the context of the continued fragmentation risks).	The fragmentation brought about by Rogun was assessed in the 2014 and 2025 ESIAs and considered as not significant, particularly when considered against the fragmentation that occurred due to Nurek. As stated in previous responses regarding further fragmentation in the upstream Vakhsh or in the Pyanj if those developments ever become reasonably foreseeable, this would have to be addressed at that time.
55	4.3. Address improvement in cooperation mechanisms and the "Harmonious Development Scenario". Reassess the effectiveness of legal and regulatory mechanisms under Protocol 566 and other agreements. Assess the feasibility of using existing mechanisms to coordinate basin-wide solutions in the face of climatic, political, and economic	The main components of such a scenario are addressed in the TCIA, although not in the form of a scenario. Adding it would not change other parts of the TCIA in any major way.

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	changes and new infrastructure development (e.g., Rogun HPP, Qosh Tepa Canal). Develop an action plan for possible adjustments to complement existing coordination mechanisms with elements necessary to effectively manage water resources under cumulative impacts and new challenges. Analyze the additional "Harmonious Development Scenario" (Scenario 6) to optimize the management of Rogun HPP in the interest of all riparian countries, while sustaining globally important biodiversity.	
56	4.4. Develop action plans to address the drought risks under all scenarios. Develop technical drought-response mechanisms that account for the worst climate change scenarios, the Qosh Tepa Canal, the Tajikistan National Water Strategy 2040, etc. The TCIA must analyze Scenario 6 to evaluate trade-offs between electricity generation and basin-wide environmental health/drought resilience. The TCIA concludes that Afghanistan must be integrated into water agreements. However, the Rogun HPP Project needs a technical adaptive management plan. If Qosh Tepa withdraws 10 km3/year, how will Rogun alter its filling schedule or operational discharges to maintain environmental flows? The current text says Rogun could help in dry years (Section 9.6), but this must be formalized into a binding Environmental Flow Management Plan. To this end, the Project may also consider developing a Drought Contingency Plan as part of the Operational Manual. This plan must define specific reservoir release thresholds (Adaptive Management) in reaction to cumulative factors exacerbating droughts (e.g., if the Qosh Tepa extraction exceeds estimates, prioritizing downstream environmental flows over power generation during critical periods).	Addressing these issues goes beyond the responsibilities of Rogun HPP (and the TCIA). Resolving these challenges requires coordinated agreements among all riparian states, including Afghanistan. Consequently, these cumulative risks would need to be addressed through an independent regional framework—such as a basin-wide Drought Management Plan or an Environmental Flow Management Plan—rather than within the context of a single project's environmental and social instruments.

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57	4.5. Reassess Rogun Reservoir filling scenarios to reflect the current situation and policies. Develop robust mitigation measures ensuring environmental flows into Ramsar Wetlands in the Amu Darya Delta and other relevant VECs. The Environmental and Social Management Plan (ESMP) must include binding, technically enforced constraints on filling rates (e.g., automated release valves linked to downstream flow gauges) to physically prevent Scenario 3, rather than relying on political promises. The ESMP must include binding technical constraints on reservoir filling rates that are automatically triggered by downstream hydrological indicators, ensuring that political will is backed by operational automaticity.	The present reservoir filling scenario does reflect the “current situation and policies” and is the only one that can guarantee a gradual filling of the reservoir (in this way not enabling scenario 3: yearly retention of the available water). Also, filling cannot be done faster than the progress of dam construction. Scenario 3 would require not to retain any water until the dam is completed, which is definitely not in the interest of Tajikistan, since it has started electricity generation already and intends to increase it il line with dam construction and gradual filling of the reservoir. Any sort of “technical constraints” and “operational automacity”, even if they were technically feasible, would be no more fail-safe than the “political promises” that have been in place and fully met for many decades.
58	4.6. Develop concept/proposal for basin-wide SEA. Given the obvious limitations of the CIA methodology demonstrated in Case of Rogun HPP Project, develop a concept/term of reference for a basin-wide Strategic Environmental Assessment for Water Management and Water Infrastructure Development. The absence of such an SEA in the current scope of the Rogun HPP Project’s E&S instruments is a large gap, which may prevent the improvement of further basin-wide cooperation essential for the future completion and management of the Rogun HPP.	This would be a beneficial undertaking (see responses to comments 30 and 36 above), but also as noted previously, it cannot be the obligation of Rogun to do that.

Part 2: Response to Table 1--Analysis of the Rogun TCIA scenarios. **black** font: RwB text **red** font: PMG response					
Comment/ response	*Scenarios used in TCIA*	*Likelihood*	*Impacts on Tigrovaya Balka World Heritage (TB)*	*Impacts on Ramsar wetlands of the Amu Darya Delta (Aral Sea)*	*Comments on gaps*
Comment 1	**Scenario 1 （substitutes baseline: Situation without Rogun HPP.** **Assumptions:** • all countries continue to use water as they do now; • Tajikistan continuing to not use the full share allocated (assumed as an average 1.2.km³); • Afghanistan (which is not included in BVO) assumed to use the 2.1 km³ annually as per the standard BVO distribution • Continued electricity shortages in Tajikistan.	**Low.** During last 5-7 years Tajikistan used almost all its share/quota of 9.5 km³. Planning documents envision gradual increase in water consumption.	Baseline study on biodiversity absent in the ESIA. Dam causing most impacts: Nurek HPP. During next 20-30 years TB will experience similar lack of periodic floods. After 2050 Nurek Reservoir active volume is progressively filled with sediment, floods and sediment inflow gradually come back to TB and improve ecosystem resilience, preventing further degradation. The TCIA also omits the fact that international water-sharing agreements do not safeguard biodiversity needs of Tigrovaya Balka.	Baseline study absent in the ESIA. The information presented contains major mistakes. Meanwhile delivery of water to remnant wetlands is enshrined in water-sharing agreements. Current trend: Amu Darya Delta getting 50% or more of its minimal water requirements, wetlands slowly shrinking. In occasional water-abundant years large inflow (in vegetation season) helps to improve long-term resilience.	The TCIA baseline is very weak founded on fragmented anecdotal and outdated evidence. The TCIA (and ESIA) lacks analysis of legal and administrative mechanisms underlying ICWC, TB World Heritage and Amu Darya Delta wetlands management. Feasibility of proper monitoring of actual water management in Tajikistan not discussed. TCIA lacks detailed description and understanding of important VECs including their eco-hydrological requirements. New baseline study is needed as a foundation for the “TCIA issues”. Environmental flow study for Lower Vakhsh is one of necessary components

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					of this baseline development.
Response 1		This is the baseline scenario. The TCIA clearly states that Tajikistan has the intention to use the full share allocated to it, in the long run for increasing its irrigation. However, presently this part of the allocation is being used for filling Rogun reservoir, and a use for irrigation will be considered only once the reservoir will have reached its full supply level.	The 2014 ESIA discussed the situation of TB in more detail. It also showed that Rogun will be operated in a way as not to change the situation downstream of Nurek. This has not changed, so there was no reason to go into more details in the 2025 ESIA. The TCIA does not “omit the fact that…”. TB and its water requirements are not mentioned in the Amu Darya water agreements. While further study specific to Tigrovaya Balka may be appropriate, an ESIA on a single	No change caused by Rogun in the downstream area, therefore no need to go into details of this area.	Since Rogun will not change the situation in the downstream area, there is no reason for an assessment of the impacts of Rogun HPP to go into these details.

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Comment/ response	*Scenarios used in TCIA*	*Likelihood*	*Impacts on Tigrovaya Balka World Heritage (TB)*	*Impacts on Ramsar wetlands of the Amu Darya Delta (Aral Sea)*	*Comments on gaps*
			project is not a suitable mechanism to address problems that were and are not caused by the project. It is important to note that, once sediment fills the Nurek reservoir, it will block the tunnels and there will be no way for floodwaters to pass safely, since there is no surface spillway or other means of passage. Thus, the delay in filling of Nurek reservoir by more than 100 years allowed by Rogun will provide time to develop and implement a solution.		
Comment 2	**Scenario 2a (filling period):**	**Highly unlikely** that during the filling of Rogun reservoir Tajikistan will be able	As the regulation functions during Rogun construction gradually switches from Nurek to	Any scenario results in direct reduction of water reaching the AD	Scenario as described in the TCIA neglects governmental plans and necessity to collect

Part 2: Response to Table 1--Analysis of the Rogun TCIA scenarios. **black** font: RwB text **red** font: PMG response					
Comment/ response	*Scenarios used in TCIA*	*Likelihood*	*Impacts on Tigrovaya Balka World Heritage (TB)*	*Impacts on Ramsar wetlands of the Amu Darya Delta (Aral Sea)*	*Comments on gaps*
	Tajikistan Using Full Allocation to fill the Rogun reservoir. Assumptions: • conditions as in Scenario 1 • starting in "year 9", Tajikistan uses its full allocation (whether for filling Rogun reservoir or for irrigation purposes) i.e. in addition to the water consumed as per the available data, +1.2 km³ in a wet year, +1.0 km³ in an average year, +0.8 km³ in a dry year (0.2 out of it in winter). • TKM and UZB keeping their share; **in this simplified approach, it is assumed that the difference would represent a direct reduction of water reaching the Aral Sea.**	to stay within its 9.5 km³ quota or current slightly greater allocations by ICWC. The reason – planned expansion of irrigated agriculture and other water uses as per National Water Management Strategy till 20240 (2024) and observed continued decline of Vakhsh river flow.	Rogun reservoir, the recurring significant harm to downstream ecosystems from complete elimination of floods and sediment flow will be caused by the Rogun HPP operation. Otherwise, those negative Impacts remain severe for the Tigrovaya Balka World Heritage Site -similar to Scenario 1. (see comments in Scenario 2 b).	Delta by 25% to 50% of current already insufficient inflow. As water resources in water-abundant years are likely to be used for intensified filling of the Rogun reservoir the likelihood of occasional large-scale replenishment in Delta water bodies will be reduced. Corresponding increase in chronic negative impact on aquatic fauna and waterbirds.	information on impacts in detail. Even within Tajik water allocation limits the impact on Ramsar wetlands is significant and results from Rogun reservoir filling (compared to suggested baseline). In any case the impacts of reservoir filling on Ramsar wetlands and other VECs has to be assessed, and mitigation options suggested. In TCIA it was dismissed despite clear requirement to deliver water to the former Aral Sea enshrined in the water-sharing agreements/mechanisms. The fact that lack of water in wetlands will be influenced not only by filling of Rogun, but also by other cumulative factors is used as illegitimate excuse not to

Part 2: Response to Table 1--Analysis of the Rogun TCIA scenarios. **black** font: RwB text **red** font: PMG response					
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					assess the impact in detail.
Response 2	Several points: • Tajikistan has constantly remained within the allocated quantity. • Tajikistan has confirmed it will continue to respect the agreements, and will begin to use its full share, first in filling Rogun and then in irrigation. • That the water retained in Rogun would reduce the amount reaching the Aral Sea is indeed a simplified assumption. It was also shown (Figure 8.3 of the CIA) that there is not direct relation between releases from Vakhsh and the inflow to the Aral Sea. It is not considered that it would bring any additional	The statement "unlikely" is an unsupported assumption. Expanding irrigation was a declared aim of Tajikistan 12 years ago. The fact that it has not done that yet is because it intends to use this water first for filling Rogun. The fact that in recent years almost the full share was used (with still 1.36 km³ unused on average) was due to some dryer years and to the (temporary) use of water for flushing irrigated areas, as stated in the TCIA.	The negative impacts downstream of Nurek are not the result of Rogun but simply a continuation of past and current impacts. Rogun will neither make the situation better or worse. This was confirmed by the TCIA.	Here again, "water resources in water-abundant years are likely to be used for intensified filling of the Rogun reservoir" has no support in fact and contradicts statements from Tajikistan. As said for TB, the fact that Rogun will not change the situation (with the exception that the entire share will be used) also implies that Rogun will not lead to an improvement of the situation in the Aral Sea area.	The focus was on potential changes due to Rogun, not on downstream impacts changes from other projects in the existing cascade. Because Rogun will not change the downstream situation, there is no reason for a detailed investigation of downstream areas in the ESIA focused on Rogun.

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	insight if several "scenarios" would be constructed with any different use pattern in the downstream allocation (which is managed by Uzbekistan in any case).				
Comment 3	Scenario 2b. Rogun HPP operations 2038-2148. "Tajikistan Commitment" Scenario -- the only one considered in the ESIA in any detail. Rogun HPP will take over the Nurek regulation function by using only 4.5 km³ of its 10.3 km³ active volume to continue exactly the same operation (flow management) regime. Nurek will become run-of-river reservoir using its live volume only for daily-weekly regulation and flood control.	Less likely Scenario than #4. The suggested regime is a bad compromise in absence of genuine cooperation. No agreement at basin level specifying its implementation has been reached so far. Tajikistan promises not to use 60-70% of live volume of the Vakhsh Cascade (15 km³), thus making the Rogun project less economically viable. Rogun dam that was	Rogun HPP becomes the main cause of recurring negative impacts for natural ecosystems downstream (e.g. flood pulse alteration, blockage of sediment transport, etc). Impacts remain severe for the Tigrovaya Balka World Heritage Site - similar to Scenario 1. The extension of impacts duration by 60-100 years, likely, makes inevitable full	Little significant additional impacts envisioned after filling. Rogun Reservoir evaporation of 150-200 million cubic meters, likely, is not very noticeable for Delta water balance. Reduction of flow critical for viability of the Wetlands of International importance is likely to constitute violation of the	TCAI fails to assess impacts/aspects from the flow regulation by Rogun HPP: 1)from "year 10" Rogun HPP will cause recurring damage to the TB World Heritage site 2)Increased negative impacts duration, extending them by 60-100 years (!!) 3) ESIA proposes that Rogun will help to control the PMF and reduce frequency of floods of smaller magnitude – most likely causing direct

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		designed to provide multi-year regulation is working in annual regulation regime.	degradation of the TB's World Heritage site's outstanding universal values: floodplain forests will be replaced by desert vegetation.	article 5 of Ramsar Convention aimed to prevent harm to Ramsar wetlands in neighbor's territory.	impact on the TB World Heritage site's key ecosystem processes. 4) Additional impacts on TB may result from the change in Nurek reservoir operations (e.g. new peaking regime).
Response 3	The focus was on this scenario because this is the proposed operation of the cascade in the future.	The comment is based on the assumption is that Tajikistan will not respect agreements with its downstream neighbours. Clearly, the Vakhsh cascade could be operated in a different way than what is proposed and accepted right now, and which Tajikistan has committed to continue.	Rogun will not "become the main cause of recurring negative impacts. For TB it makes no difference whether water (and sediments) is being retained in Nurek or Rogun reservoir. Please refer to the above response.	Situation as described above. As described in the 2014 ESIA and mentioned in the TCIA, a more effective way for improving the situation along the lower parts of the Amu Darya and the Aral Sea Delta region would probably be efforts for improving the efficiency of the irrigation systems, in this way	1. No, Rogun will not change the situation downstream. 2. This is assuming that nothing whatsoever will be done--this however is independent of Rogun. 3. The fact that Rogun can handle the PMF is a very relevant improvement of the safety situation in the downstream area far beyond TB. A dam break of Nurek because of a PMF would most probably, in addition to the damage in densely

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		The TCIA states that Rogun (or the cascade) would have the potential to release more water in an exceptionally dry year, but that this would require an agreement among the countries that Tajikistan could then retain more water in following years for refilling the reservoir. It is clear that the countries could decide, for whatever reason, to modify water management rules in the Amu Darya basin. The TCIA shows (in scenarios for rapid filling and additional shift) what the consequences of not		reducing water losses. As noted above, a solution will need to be found to the situation that will arise when both Rogun and Nurek reservoirs are filled with sediment and there is no way for Nurek to release waters.	populated areas, also change TB in a way that would damage or destroy its value as a wetland for potentially a very long time. As to smaller floods, Nurek is able to handle them and has done so in the decades since its commissioning. No change due to Rogun. 4. Nurek is not expected to change its operating regime. At least since the early 1990s Nurek has been operated as a ROR scheme. It can only do so as far as the downstream HPPs can handle the changes. This would again not be a change from the situation without Rogun.

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		respecting the rules would be, but it properly does not assume that Tajikistan will act in this way.			
Comment 4	**Scenario 4: Additional Shift (Operations phase).** Assumptions: Same conditions as Scenario 3, but after filling the reservoir, starting in year 18 Rogun HPP is operated by shifting an additional 5 km³ of water from summer to winter. At the same time river discharge in winter would increase, i.e. during the non-vegetation period.	Highly likely scenario. Scenario selected is not the worst one, as 5.5 km³ of the live volume in the cascade remain unused. Similar change once happened at smaller scale when Nurek Reservoir shifted from irrigation to energy operation regime in the 1990s. In absence of specific binding agreement, no clear mechanisms available to ICWC to prevent Tajikistan from such shift. Prioritizing economic viability of Rogun HPP and	Additional impacts on critical habitats of Tigrovaya Balka likely moderately worse to highly negative in all years due to already very high impacts. This will likely lead to achieving faster complete degradation of the floodplain ecosystem than in Scenario 2b. Most profound negative impacts on aquatic biota of lower Vakhsh and Amu Darya downstream of it, in particular, from manifold	According to the TCIA (Table 9-7) this will increase by 2-3 times the frequency of extremely low inflows. In reality, such change in operational regime will, likely, completely eliminate the current legal mechanism set by Protocol 566 and other old basin-wide agreements, which prescribe delivery of certain volumes of water into the Delta	Different impacts on biodiversity VECs not articulated and not analyzed. Assumption that winter flows may improve ecosystem health in the Delta is not supported by ecological research and likely not accurate as wetland ecosystems usually need water most during warm seasons. Suggested scenario does not represent full degree of threat, must be complemented the “worst case scenario” with greater seasonal flow redistribution with maximum use of the Vakhsh Hydropower

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		satisfying both domestic population and vast export contracts is likely to trigger such a shift.	increase in winter flows.	wetlands. Besides, this will create incentives for downstream countries to build additional large water-storage facilities. Therefore, Ramsar wetlands in Amu Darya Delta are likely to be fully eliminated under this scenario.	Cascade live volume. Feasibility of avoiding Scenario 4 in circumstances of climate stress, changing international relations, not analyzed. No mitigation measures designed.
Response 4	In this case winter discharge would obviously increase, to the same extent as summer discharge would be reduced. This is not an assumption but the inevitable consequence of such a shift.	Highly unlikely scenario, since it assumes that Tajikistan would completely ignore international agreements (Protocol 566) as well as vital interests of its neighbours. As noted, there are legal covenants that	Yes, such a shift would indeed run against the needs of TB by further reducing summer flows and increasing winter flows, and would actually be a negative impact on TB caused by Rogun that could be overcome by releasing water in summer, which is precisely what this	Yes, it would (not “will”) increase the frequency of extremely dry summers in the downstream area, in a way that would not be acceptable for downstream countries. However, the effects on Aral Sea	This scenario has been excluded, since the impacts would be unacceptable. Mitigation would not be possible if this scenario was adopted. Such a situation would only be possible in case the countries would decide to manage water resources in the basin in

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		Tajikistan will continue to adhere to its international commitments.	scenario would avoid doing.	would still be largely controlled by water allocation by Uzbekistan. There may be incentives for downstream countries to build additional storage, but this raises the question why they have not done so already for storing winter flows.	this way, which is extremely unlikely. Note: it is not the worst possible scenario.
Comment 5	Scenario 5: Qosh Tepa. Assumptions: Same conditions as Scenario 4, but starting in "year 20" Qosh Tepa canal operates by deviating 10 km³ of water yearly, 8 of which in summer and 2 in winter.	Highly likely scenario. Development of Rogun HPP without setting new project specific agreements-mechanisms complementing the P.566 and old treaties will contribute to inability to include into ICWC system Afghanistan (threat of	No immediate additional hydrology-driven impacts from the Canal on the TB as its intake is located downstream. Likely impacts on similar downstream tugay forests in Turkmenistan and Uzbekistan. Possible (but not obvious) long-	According to the TCIA Table 9-7 this will increase by 3 times the frequency of extremely low inflows. In reality, the scenario includes elimination of the current legal mechanism set by Protocol 566 and other old basin-	Different impacts on biodiversity VECs not articulated and not analysed. Assumption that winter flows may improve ecosystem health in the Delta is not supported by ecological research and likely not accurate as wetland ecosystems usually need

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		which is explicitly expressed by Afghanistan's disapproval of the Rogun HPP Project). Creation of this canal outside of the existing basin-management system will make this coordination mechanism obsolete\defunct. It also contains incentives for Tajikistan to violate its promise to restrain the use of Rogun HPP against its own interest.	term impacts on aquatic biota of Panj-Vakhsh-Amu Darya due to changes in interconnected populations (e.g. sturgeons) or/and introduction of new invasive species through the new canal system.	wide agreements, which prescribes delivery of certain volumes of water into the Delta. Besides, this will create incentives for downstream countries to build additional large inefficient water-storage facilities. Therefore, Ramsar wetlands in Amu Darya Delta are likely to be eliminated under this scenario.	water most during warm seasons. Suggested scenario does not represent full degree of threat, must be complemented [by] the "worst case scenario" with greater seasonal flow redistribution with maximum use of the Vakhsh Hydropower Cascade live volume. Feasibility of avoiding Scenario 4 in circumstances of climate stress, changing international relations, not analyzed. No mitigation measures designed.
Response 5		Notwithstanding any incentives that may exist at present or in the future under this scenario, Tajikistan has no intention to "violate its promise" to	Not clear why the canal should lead to introduction of new invasive species. Regardless, this is not affected by and will not affect the Rogun HPP	The problem, as clearly stated in the CIA, is that the "basin-wide agreements" do not include Afghanistan" (in	Potential impacts were not analysed in any detail because the scenario shows very negative impacts, to an extent that it cannot be considered as a viable alternative. Even

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		adhere to the international agreements. As to "setting new project specific agreements-mechanisms", it is important to note that Rogun will not affect the ability of Tajikistan to meet its obligations under current agreements. Therefore, no "project-specific" agreements are needed. As for "Afghanistan's disapproval of the Rogun HPP Project", there has been no formal communication from Afghanistan concerning their opinion of Rogun HPP.	so is beyond the scope of the ESIA, including the TCIA.	addition to the problem presented by the present regime in Afghanistan). The "incentive to build additional large inefficient water storage" is mere speculation. However, it might be an incentive to upgrade existing irrigation schemes for making them more efficient by reducing losses. It is not very probable that in this situation (i.e. with Qosh Tepa), Tajikistan and Rogun would add to the problems in Uzbekistan and Turkmenistan.	with Rogun operating as shown in scenario 2 the result caused by the canal would be very difficult for the two countries. The TCIA can only indicate negative effects of the canal, but cannot prepare an ESIA for that project. Effect on Aral Sea: the statement that additional winter flow would not improve the situation of the Aral Sea Delta is correct, and the TCIA does not say or imply that, it just refers to the (former) Aral Sea as such, where this amount of water would not make a difference. The Aral Sea Delta is not mentioned in the TCIA, and this will be added before the TCIA is finalized.

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					It may not be the absolutely worst scenario imaginable as the Vakhsh cascade could shift even more water. However, it assumes that Qosh Tepa would deviate 10 km³, while the more realistic assumption is that it would use 5 km³.
Comment 6	Scenario 6. “Harmonious Development” This scenario, when Tajikistan and other basin countries agree on mutually beneficial way to use Rogun HPP as multi-year regulation facility to alleviate droughts and provide other benefits is mentioned many times in the ESIA (and was the focus of the World Bank’s conclusions on the ESIA in 2014). IT IS ABSENT FROM THE TCIA formal analysis	In reality it is the only way forward that avoids major conflict. Scenario is intrinsically linked to wider reform of the belated wider reform/improvement of ICWC and underlying old agreements.	Multi-annual regulation may have good and may have bad consequences for biodiversity, depending on specific parameters. Tradeoffs with improvements in irrigation must be analyzed in detail. Specific scenario should incorporate developing environmental flow requirements for Lower Vakhsh river.	Likely neutral. May reduce inflow in high-water years. Tradeoffs with improvements in irrigation must be analyzed in detail. Specific scenario should incorporate developing environmental flow requirements for Amu Darya Delta wetlands should be written into new operation scheme.	Scenarios featuring the mutually beneficial operational regime must be added with detailed analysis of tradeoffs and synergies between improved conditions for irrigation, environmental health, biodiversity values and electricity generation and trade.

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Response 6	The TCIA does not specifically include such a scenario, but it mentions possibilities and conditions, as e.g. in Section 9.8.	The necessity for revising the existing agreements (Protocol 566) and for including Afghanistan in overall water resources management is stressed repeatedly in the TCIA (e.g. Section 9.8), along with the potential for operating Rogun (or other storage schemes) for retaining more water in wet and releasing more water in dry years, as well as the benefit of making existing irrigation systems more efficient (Section 6.6.3).	The TCIA does not analyse this since Rogun HPP does not affect downstream receptors under current operation and is not proposed to do so. However, it is agreed that this would be a beneficial development.	Again, it is agreed this could be beneficial and is ripe for further study, but it is beyond the control of Rogun HPP.	It is noteworthy that there are many such scenarios and the TCIA clearly mentions the advantages of developing such a situation. However, consideration of any one of them is beyond the reach of a single ESIA on a single project that does not change the situation in any significant way