

IPN REQUEST RQ 19/04

September 4, 2019

**MEMORANDUM TO THE EXECUTIVE DIRECTORS OF THE
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT**

Request for Inspection

**LEBANESE REPUBLIC: Water Supply Augmentation Project (P125184); Greater
Beirut Water Supply Project (P103063); and its Additional Financing (P165711)**

Notice of Non-Registration

Summary

1. In accordance with paragraph 17 of the Resolution¹ establishing the Inspection Panel (the “Panel”), I hereby inform you that on June 24, 2019, the Panel received a Request for Inspection (the “Request”) of the Lebanon Water Supply Augmentation Project (the “WSAP” or “Bisri Dam”) and the Greater Beirut Water Supply Project (the “GBWSP”) and its Additional Financing (the “Projects”).
2. The Request was submitted by Lebanon Eco Movement, a network of 60 environmental non-governmental organizations (NGOs), representing 105 residents and landowners of the project area. The Requesters asked for confidentiality and authorized Lebanon Eco Movement to represent them during the Panel process. The Request also includes as an attachment a petition with more than 30,000 signatures of people from Lebanon and other countries opposing the construction of the Bisri Dam.
3. The Requesters allege harm from the Bisri Dam in Lebanon, including the loss of biodiversity and cultural landscape, earthquake threats and issues related to the analysis of alternatives, the assessment of water balance and cost effectiveness. The Request refers to an earlier Request for Inspection regarding the same Projects (see case no. 127),² for which the Panel in November 2018 recommended not to conduct an investigation. The recommendation was approved by the Board on December 6, 2018. The Requesters explain that they were not

¹ The World Bank Inspection Panel, International Bank for Reconstruction and Development, Resolution No. IBRD 93-10 (referred to as the “Resolution”). <https://www.inspectionpanel.org/sites/ip-ms8.extcc.com/files/documents/Resolution1993.pdf>

² Lebanon: Water Supply Augmentation Project (P125184); Greater Beirut Water Supply Project (P103063) and its Additional Financing (P165711), available at: <https://www.inspectionpanel.org/panel-cases/water-supply-augmentation-project-p125184-greater-beirut-water-supply-project-p103063>

satisfied with the Panel's recommendation and, based on new evidence and circumstances, they are submitting a new Request for Inspection.

4. After conducting its due diligence, including speaking with the Requesters and Management and reviewing additional information submitted by the Requesters, the Panel is not registering this Request.

The Projects

5. The WSAP was approved on September 30, 2014, for an International Bank for Reconstruction and Development Loan of US\$474 million. The total cost of the project is US\$617 million. The Islamic Development Bank is co-financing the project with US\$128 million, and the Borrower with US\$15 million. The project's closing date is June 30, 2024, and its disbursement at the time of receipt of the Request was 37 percent. It is a Category A project.

6. The WSAP's development objective is to "*increase the volume of water available to the Greater Beirut and Mount Lebanon area.*"³ The component subject of this Request is component 1: Construction and construction supervision of Bisri Dam and associated infrastructure (US\$392 million). The project triggered the following safeguard policies: Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forests (OP/BP 4.36), Physical Cultural Resources (OP/BP 4.11), Involuntary Resettlement (OP/BP 4.12) and Safety of Dams (OP/BP 4.37).

7. The GBWSP was approved in December 2010 for US\$200 million and the Additional Financing (AF) in June 2018 for US\$90 million. The closing date is November 30, 2020 for both. The GBWSP was 50 percent disbursed at the time of receipt of the Request and the AF was not yet effective. It is a Category A project.

8. The GBWSP's development objective is "*to increase the provision of potable water to the residents in the project area within the Greater Beirut region, including those in the low-income neighborhoods of Southern Beirut, and to strengthen the capacity of the Beirut Mount Lebanon Water Establishment in utility operations.*"⁴ The objective of the AF is to meet a financing gap under the GBWSP and to help finance the costs associated with the scaling up of investments. The GBWSP and its AF triggered the following safeguard policies: Environmental Assessment (OP/BP 4.01) and Involuntary Resettlement (OP/BP 4.12).

The Request

9. The Requesters acknowledge the Panel's previous efforts to address their concerns, but believe that the earlier Request was not satisfactorily assessed. According to them, the Panel accepted inaccurate information and factual discrepancies provided by Bank Management and did not evaluate the validity of studies and the grave social, environmental and economic harm caused by the Bisri Dam. The Request explains they are submitting a new Request, "*given the emergence of new evidence and circumstances.*"

³ Project Appraisal Document (PAD) of the Water Supply Augmentation Project, p. ii.

⁴ Project Appraisal Document (PAD) of the Greater Beirut Water Supply Project, p. 4.

10. The Requesters explain that, if implemented, the Bisri Dam will destroy the entire Bisri Valley, devastating 600 hectares of forests and agricultural land and dismantling more than 50 archeological and historical sites. They state that the dam is planned to be built on the site of an active seismic fault, posing risks of reservoir-triggered seismicity (RTS) that would affect the safety of many villages in Lebanon. They add that it is based on an inaccurate understanding of the water balance and an incomplete consideration of alternatives.

11. The Requesters also state that Lebanon's economy is on the brink of collapse with additional debt and unnecessary construction and operational cost causing harm to the country. They claim that Lebanon is experiencing unbearable increases in the size of water bills because of failed dam projects across the country.

12. The Requesters describe the historical, cultural and religious values of the Bisri Valley and note that the landscape of the valley is unique as it is the only valley in Mount Lebanon that is *"deep yet wide and flat enough to house an extremely fertile agricultural plain."* According to them, the Bisri Valley is a hotspot of biodiversity and a major resting spot for migrating birds. They allege that the integrity of the Bisri-Awali valley system will be damaged permanently with the construction of the Bisri Dam. They believe that the Bisri Valley's cultural landscape is worth of full site protection as per World Bank policy OP 4.11.

13. Regarding earthquake threats, the Requesters allege that Bank Management made incorrect and misleading statements about the dangers of RTS and has played down its serious risks. They list examples where RTS has occurred with dams that are smaller than the planned Bisri Dam. The Requesters explain that according to the International Commission on Large Dams (ICOLD), the best approach for large dams is to carry out a full neo-tectonic analysis for the existence of faults near the dam reservoir and to assess the earthquake potential of each fault. The Requesters consider the neo-tectonic analysis conducted for the Bisri Dam in 2014 flawed and inconclusive, and that it failed to assess RTS potential. They claim the Dam Safety Panel (DSP) established for the Bisri Dam largely relied on this study and did not consider other studies of the region. The Requesters further question the expertise and independence of some of individuals on the DSP.

14. The Requesters argue the Environmental and Social Impact Assessment (ESIA) was not prepared by independent experts, as required by Bank policy, and that one of the individuals on the Environmental and Social Panel of Experts (ESP) used to be a World Bank staff member. With regards to biodiversity, the Requesters explain that the number of species identified in more recent surveys is 3.5 times higher than the one in the ESIA, which, according to them, raises concerns about the validity of the original ecosystem services valuation and cost-benefit analysis. The Requesters are of the view that the loss of the Bisri Valley's unique landscape and ecology cannot be compensated. The Requesters also argue that the ESIA is invalid as, according to Lebanese law, the Ministry of Environment's approval of the ESIA is valid for two years only when project works have not started.

15. The Requesters further allege that the analysis of the water balance in the ESIA is reductionist, inconclusive and uses outdated and irrelevant data. According to the Requesters, the analysis of alternatives for the Bisri Dam was limited. The Requesters propose a *"comprehensive, hybrid, low risk, and environmentally conscious water management plan, reforming the groundwater sector, providing additional water for the GBA [Greater Beirut Area] from wells and springs within a 15 km radius of Beirut, improving the capture and*

efficiency of the Jeita Spring and the associated network, and implementing MAR [Managed Aquifer Recharge] and Artificial Recharge projects in the GBA.”

16. The Requesters express concern about the water quantity and claim that no adequate investigation of the water flow and availability for the Bisri reservoir was conducted and no hydrogeological model to assess groundwater flow and boundary conditions, sources and sinks in the study area was performed. The Requesters further argue that the impact of climate change was not adequately assessed.

17. According to the Request, Lebanese citizens are paying high water bills due to the failed strategies of surface water storage and the building of dams. The Requesters believe that the construction and operation of the Bisri Dam will lead to further cost increases that the residents of Beirut and its suburbs may not be able to afford. They refer to several examples of dams in Lebanon that were not successful and claim that Bank Management adopted misleading communication about costs to promote the Bisri Dam. According to the Requesters, Bank Management claimed water would be transported to Beirut entirely by gravity, however, pumping will still be required, and this cost was not appropriately assessed. The Requesters believe the state of the Lebanese economy requires a serious reconsideration of large loans, especially the one for the Bisri Dam, and allege that it will worsen the economic crisis.

18. The Requesters allege that the official communication about the Bisri Dam has been misleading, as it claims there will be no loss of biodiversity and that cultural and archeological sites would be preserved. The Requesters criticize the Projects’ social media campaign as misrepresenting the water situation in Lebanon. They raise concerns about statements by World Bank officials that Lebanon could export water to Jordan and that consensus from professionals and citizens was reached about the Bisri Dam.

19. The Requesters state that, since the Panel’s last Report and Recommendation, they have engaged with Bank Management and remain unsatisfied with the outcome of this engagement. They add that they have interacted with members of Parliament and, at the recommendation of Parliamentarians, the implementing agency has published several studies on its website. In subsequent communications with the Panel, the Requesters expressed their dissatisfaction with the quality of some of these studies. On June 29, 2019, they submitted a detailed note with their views on the studies relating to earthquake threats, which the Panel considered as part of the Request.

20. The Requesters claim that excessive force is used by the Government against local communities and activists. They reported an incident on June 9, 2019, where five men ambushed the coordinator of the Save the Bisri Valley Campaign while he was leading a tour of the area. One of the attackers bit off part of the coordinator’s left ear. The Requesters claim that some of the assailants were connected with the implementing agency. The Requesters also state that the Government is responding to peaceful protests with an exaggerated use of force. They allege that hundreds of military members, anti-riot police and private security forces are being mobilized. They further claim some landowners are banned from accessing their land while others are threatened with losing their government jobs because of their participation in protests to protect the Bisri Valley.

21. According to the Requesters, the high costs and social and environmental risks of the Bisri Dam outweigh any potential benefits, especially since better and cheaper alternatives exist. They “ask the Inspection Panel to use all the expertise to investigate the reported violations” and “urge the Panel to take actions to withdraw all support for the dam and help save the Bisri Valley and Lebanon from one of the most destructive and costly projects currently planned.”

22. The Request contains several attachments, including technical reports, maps, excerpts from the earlier Management Response and other documents, as well as media reports and email correspondence. The Request is attached to this document as Annex 1.

Panel’s Due Diligence

23. In accordance with its Operating Procedures,⁵ the Panel on July 17, 2019, issued a Notice of Receipt on its website and informed the Requesters and Management.

24. As part of its due diligence, the Panel reviewed the information presented in the Request and its attachments, relevant project documentation and conducted two phone calls with the Requester representatives, on July 25, 2019, and August 13, 2019, to better understand the issues raised in the Request and subsequent submissions⁶ by the Requesters. On August 27, 2019, the Panel received an Open Letter, signed by 15 international and regional civil society organizations,⁷ urging the Panel to “seriously consider and address the concerns raised by the complainants.” The Panel acknowledges the serious concerns of the Requesters and appreciates their efforts and readiness to provide additional information and clarifications and to engage constructively with the Panel. The Panel also emphasizes the critical importance of being able to raise concerns about any Bank-supported project freely and without fear of retaliation.

25. The Panel also met with Bank Management on August 5, 2019. Management explained that the construction of the Bisri Dam has not yet started and that project implementation was progressing according to plan. According to Management, frequent supervision missions are taking place and the DSP has conducted one mission and the ESP two missions in 2019.

⁵ See, Inspection Panel 2014 Operating Procedures, available at:

<http://ewebapps.worldbank.org/apps/ip/PanelMandateDocuments/2014%20Updated%20Operating%20Procedures.pdf>

⁶ These submissions included a list summarizing the new evidence and circumstances that the Requesters believe warrant a registration of the Request, a letter from four Parliamentarians addressed to the Panel raising concerns about the analysis of alternatives and the economic situation of Lebanon, reports about alternatives that in the Requesters’ views were not analyzed (the Rehabilitation of the Jeita Spring’s network, the Improvement of the Jeita Spring’s yield through MAR dams, the implementation of Artificial Recharge within the Greater Beirut Area, and the investment in other springs within a 15 kilometer radius of Beirut) and additional documents relevant to the analysis of alternatives and earthquake threats. The Requesters also sent more information about Lebanon’s economic situation.

⁷ The Open Letter was signed by Bank Information Center-US, Bretton Woods Project-UK, Bank Information Center-Europe, Urgewald-Germany, International Indigenous Peoples Movement for Self-Determination and Liberation, WoMin African Alliance, Bir Duino-Kyrgyzstan, Rivers Without Boundaries-Mongolia, Witness Radio Organization-Uganda, Phenix Center for Economic Studies-Jordan, GoAct (Tunisian Association for Governance and Social Accountability)-Tunisia, Egyptian Center for Civic and Legislation Reform-Egypt, Abna’a Alnazehein Organization in Missan-Iraq, Women Affairs Organization-Iraq and Tabani Foundation for Active Youth-Iraq.

Management explained that both panels confirmed that, in their view, project implementation was in compliance with World Bank policies.

26. According to Management, the finalization of the social, environmental and technical studies is proceeding according to the planned timeline. The Ecological Compensation Plan was submitted for review to the Government on August 1, 2019, was to be submitted to the Bank by August 30, 2019 and will be consulted and finalized prior to the start of construction. The Masterplan for the Catchment and Shoreline Development is currently being procured and will be finalized by November 2020. Management also explained that a currently ongoing archeological survey is investigating, documenting and preserving archeological sites in close coordination with the Directorate General of Antiquities, and will be completed prior to the reservoir filling. The draft Construction Environmental and Social Management Plan was recently submitted to the Supervising Engineer, was to be submitted to the Bank for review by August 30, 2019, and will be finalized prior to the start of works. Management also explained that updates to the ESIA are not required as there are no changes in the project design or baseline situation.

27. Management stated it is encouraging an open and inclusive consultation process. A series of consultations with all key stakeholders have been conducted over the past few months, including with project-affected people, NGOs and Parliamentarians. Management explained it has maintained frequent communications with the Requesters and held a meeting with them in March 2019. Management has also facilitated meetings between the two panel of experts and civil society. In addition, Management has been working with the Government of Lebanon to disclose as much information about the Projects as possible, resulting in the disclosure of many studies by the implementing agency in June 2019. Management also shared with the Panel an exchange between the implementing agency and Ministry of Environment in which the implementing agency indicated its intention to proceed with construction of the Bisri Dam and the Ministry of Environment acknowledged receipt of the letter and stressed the importance of adhering with earlier conditions and studies under preparation.

28. Regarding the allegations of retaliation, Management explained that when it learned about the attack on the coordinator of the Save the Bisri Valley Campaign in June 2019, it immediately raised the issue with the Government of Lebanon and conveyed that any retaliation needs to be condemned. The implementing agency issued a statement publicly condemning the attack.

29. The Panel notes that the Requesters' concerns about the Bisri Dam's impact on biodiversity and archeological values, earthquake threats, assessments of water quantity and analysis of alternatives were extensively reviewed earlier. Relevant documentation relating to these issues was considered by the Panel in making its recommendation in its report of November 2018. The Panel has not seen or heard new information in relation to these issues that qualify as new evidence or circumstances as required for the Panel to consider this Request admissible under its Resolution, Clarifications and Operating Procedures and thus warranting a registration of the Request.⁸

30. The Panel acknowledges the Requesters' serious concerns about RTS and appreciates the additional information provided, including a summary of the Requesters' views on the

⁸ See Resolution, para. 14d and 2014 Operating Procedures para. 25g.

recently disclosed technical reports and a recent article by Professor Tony Nemer on the seismology of the project area. The Panel notes that in line with the requirements of the Bank's Policy on the Safety of Dams, a DSP has been established to review and advise the Borrower on matters relative to dam safety and other critical aspects of the dam.⁹ The Panel notes that the DSP is composed of internationally recognized experts in the fields of geology, seismology, embankment and foundation design as well as hydrology. One member of the DSP was a former president of ICOLD and currently serves as honorary president and member of ICOLD on Seismic Aspects of Dam Design. Another expert on the DSP is also a member of ICOLD and has extensive experience with earthquake engineering. The Panel notes that the members of the DSP are well-qualified experts who are familiar with ICOLD standards, including *Bulletin 137 on Reservoirs and Seismicity: State of Knowledge*. With regards to the Requesters' allegation of a conflict of interest concerning one member of the DSP, the Panel notes that this expert is a well-known and highly experienced professional, and the Panel sees no indication that this expert's ability to exercise independent and professional judgment may be compromised. The Panel has no basis to question the expertise and work of the DSP.

31. During its due diligence for its November 2018 recommendation, the Panel reviewed the reports issued by the DSP and spoke to all of its members at length. The Panel also met with Professor Nemer to better understand his research. In the Panel's judgment, the information provided in the new Request does not qualify as new evidence or circumstances, as the Panel at the time already had access to the relevant dam safety reports and substantively considered potential non-compliance by the Bank in relation to the concerns about earthquake threats, including RTS, based on this information.

32. As part of its due diligence, the Panel considered the national legislation relating to Environmental Assessment and notes that, if requested by the Ministry of Environment, the ESIA needs to be updated in cases where project works have not commenced within two years after the ESIA's approval. The Panel notes that the Ministry recently responded, though beyond the two-year timeline, to the implementing agency's notification of its intent to proceed with the Project and did not request an ESIA update.

33. The Panel considered the Requesters' concerns about the macroeconomic situation of Lebanon, and notes that necessary economic analyses were carried out for the Bisri Dam as required by the Bank's Policy on Investment Project Financing (OP/BP 10.00).¹⁰ The Panel notes that subsequent changes in the macroeconomic situation of a country need to be addressed in the context of the country engagement, beyond a specific project. The Panel adds that issues raised by the Requesters regarding the overall macroeconomic situation of Lebanon are not within its mandate.

34. The Panel assessed the Requesters' concerns about a conflict of interest and lack of independence of a member of the ESP and relating to the consultant that prepared the ESIA for the Bisri Dam. The Panel notes that the ESP experts are respected professionals in their fields of expertise with decades of relevant experience and are not undertaking any current assignment that would jeopardize their ability to exercise professional judgment and act in an impartial manner. The Panel also assessed the potential conflict of interest concerning the consultant that

⁹ OP 4.37 on the Safety of Dams, para. 5.

¹⁰ Bank Policy on Investment Project Financing, OP/BP 10.00, dated April 2013, paras 5 (OP) and 17 (BP). Please also see the PAD of the Water Supply Augmentation Project, Annex 6 on Economic Analysis.

prepared the ESIA and notes that while it is correct that this company is contracted for the GBWSP, its role is confined to construction supervision.

Panel Determination

35. In line with its Resolution, Clarifications and Operating Procedures,¹¹ the Panel verifies as a basis for registration that the Request is not the same as a previous Request on which the Panel has already made a recommendation. If the Request raises similar matters as a previous Request, then the new complaint must present new evidence or circumstances related to the Requesters' concerns.

36. The Panel notes that the Request raises similar matters as the Request received in August 2018 relating to the same Projects. The Panel registered this earlier Request in September 2018, conducted a visit to Lebanon in October 2018 and issued its recommendation not to investigate in November 2018. The Board approved the recommendation on December 6, 2018. The Panel carefully reviewed the information in the new Request to determine whether new evidence or circumstances warranted a registration of the Request. The Panel notes that most of the information presented in the new Request was considered by the Panel prior to issuing its 2018 Report and Recommendation. The new information presented, in the judgment of the Panel, does not constitute new evidence or circumstances that warrant a registration of the Request.

37. In light of the foregoing and in accordance with the Panel Resolution, its Clarifications, and its Operating Procedures, and after reviewing the information gathered through its own due diligence and received from the Requesters and Management, the Panel is not registering this Request for Inspection.

Yours sincerely,



Imrana Jalal
Chair

Attachments

Mr. David Malpass, President
International Bank for Reconstruction and Development

The Executive Directors and Alternates
International Bank for Reconstruction and Development

Lebanon Eco Movement
(Requesters confidential)

¹¹ See Resolution, para. 14d and 2014 Operating Procedures para. 25g.

ANNEX I

REQUEST FOR INSPECTION

June 24th, 2019

To: Executive Secretary, the Inspection Panel
1818 H Street NW, MSN 10 - 1007, Washington, DC 20433, USA

REQUEST FOR AN INSPECTION ON THE IMPACTS OF THE BISRI DAM PROJECT IN LEBANON

We, the Lebanon Eco Movement (LEM), are a network of 60 environmental NGOs advocating for sustainable development and the protection of the environment in Lebanon. The movement co-founded the Save the Bisri Valley Campaign in collaboration with the affected communities and a group of experts. LEM is also a member in the Arab Watch Coalition. In this request, we represent a group of residents and landowners whose addresses and signatures are enclosed below. We are also attaching a copy of a new petition that gathered more than 30,000 signatures (Annex Z.b).

Our network submitted an earlier request for inspection on June 6th, 2018, and the Panel did not recommend investigation. While we acknowledge the Panel's previous efforts to address our concerns, we believe that the first complaint was not satisfactorily answered. The Recommendation Report given by the Panel focused more on ensuring a checklist of studies is filled rather than evaluating the validity of the studies and, most importantly, the grave social, environmental and economic harms the project poses to Lebanon. Consequently, the Panel accepted inaccurate information and factual discrepancies provided by the Bank Management. **Additionally, given the emergence of new evidence and circumstances, we are submitting a new request for inspection.**

Our concerns have been already conveyed to the relevant authorities and to the World Bank Management in Beirut. However, the concerns were either disregarded, or addressed with neglect and delay. This is further elaborated later in the request.

The World Bank-funded project is planned by the Council for Development and Reconstruction (CDR) in Lebanon and situated on the Awali River in a valley of high ecological, cultural and archaeological significance. As part of the Greater Beirut Water Supply Project (GBWSP), it aims to funnel water to Beirut and its suburbs from the Bisri reservoir through water transmission lines. The GBWSP is part of the National Water Sector Strategy (NWSS) approved by the Lebanese Government in 2012. The Bisri Dam will necessitate the construction of a 73m high structure and the expropriation of 600 hectares of mostly agricultural and natural lands from different municipalities of the Chouf and Jezzine districts. The total cost of the GBWSP and associated projects is around 1.2 billion USD.

The Valley of Bisri is one of the major valleys that cut through the Mount Lebanon mountain chain, from the Chouf region down to Saïda and through the district of Jezzine. It is crossed by the Bisri River which is formed by the confluence of the Aaray and Barouk rivers and which takes the name of Nahr el-Awali further downstream before reaching the sea north of Saïda. The Bisri Valley displays distinct geological and ecological features that foster sensitive agricultural practices, dotted by countless archaeological remains and places of worship that testify of its historical, strategic and religious importance across all periods of history. It is a cultural landscape that shows a clear balance between a natural environment and human activities that shaped, developed and gave meaning to the landscape. One can consider it to be a part of a wider “Cultural Landscape of the Sacred Valley of Eshmoun”, centered on the entire course of the Awali/Bisri river.

If implemented, the dam will destroy the whole valley of Bisri, devastating 600 hectares of forests and agricultural land, and dismantling more than fifty archeological and historical sites. The plan calls for the dam to be built on an active seismic fault, posing risks of reservoir-induced seismicity (RTS) that would affect the safety of tens of villages in Lebanon. On top of the catastrophic social and environmental impact, the project is based on an inaccurate understanding of the water balance and an incomplete consideration of alternatives, favoring expensive large-scale infrastructure instead of an integrated, environmentally conscious water management plan.

Lebanon’s current debt levels, partially the result of decades of borrowing for real estate and large-scale infrastructure projects, have contributed to a fiscal deficit of around \$15 billion dollars (Goldman Sachs, Reuters, 2019). This has caused Lebanon to amass the highest GDP to debt ratio in the world, currently at 150 percent. While the country’s economy is on the brink of collapse, additional debt and unnecessary costs of construction and operation are harmful for both Lebanon and the Bank. The addition of another large capital expenditure project will add to, rather than alleviate, the growing debt in a context where the solution requires demand-side interventions and better monitoring, control, and management of the nation’s economic activity. In fact, we are already experiencing unbearable increases of water bills because of failed dam projects across the country.

We urge the Panel to take actions to withdraw all support for the dam and help save the Bisri Valley and Lebanon from one of the most destructive and costly projects currently planned. The various issues that need urgent attention are highlighted here below:

I. Loss of Cultural Landscape

The Bisri Valley holds great historical, cultural and religious significance. In the direct hinterland of the ancient city of Sidon, extremely suitable for agriculture, located directly on historical communication routes between the coast, the Beqaa and Syria, the valley has known uninterrupted human occupation since the Bronze Age. Around 70 identified archaeological sites; settlements,

tombs, fortresses, ruined convents, a temple, bridges, roads, stairs; testify of this rich history. Even the name “Bisri” is a derivative of “Bostrenos”, the river’s name in Hellenistic times. Located on the edge of the same water course, the famous temple of Eshmoun north of Saida and the Roman-period temple of the Bisri Valley had a symbolic connection and were located on the same pilgrimage route. Indeed, the river used to also be named “Asclepios” which is the Greek equivalent of Eshmoun. A religious importance that lived on after the advent of Christianity, with historic churches and convents dotting the valley¹ (Atallah, 2017).

The landscape of the Bisri valley is also unique in Lebanon and unlike any other valley in the country. It is the only valley in Mount Lebanon that is deep yet wide and flat enough to house an extremely fertile agricultural plain. Because it runs on a flat terrain, the Bisri River meanders between sand banks, along a course that changes freely every year, a unique hydrological feature in the Lebanese mountains. It gathers a strong diversity of geological components that include steep limestone cliffs, sandstone slopes and a plain of alluvial silt. This multiplicity of terrains gave birth to an equally diverse vegetation. Dry northern slopes contrast with a lush southern side covered in oak trees and tall pine groves. Fields and orchards cover the fertile bottom of the valley on both sides of the river whose banks are lined with reeds and poplar trees. The Bisri Valley is thus a hotspot of biodiversity and a major resting spot for migrating birds. This ecological importance was officially acknowledged when it was classified as part of a protected natural area by the Ministry of Environment in 1998 and recognized as an exceptional natural landscape in the National Physical Master Plan of the Lebanese Territory² (CDR, 2009).

The Bisri Valley is unfortunately endangered of being destroyed, uprooted, emptied, and excavated, before being drowned by the dam. 600 hectares of natural or cultivated lands will be lost, historical churches and about 50 archaeological sites will vanish, including the temple of Marj Bisri. **The integrity of the Bisri/Awali valley system will be permanently damaged** with the loss of the Bisri Valley which is one of its major sections. A unique and essential section of the cultural landscape of the Sacred Valley of Eshmoun will be destroyed. A natural and cultural wealth which has stood preserved from war, pollution and uncontrolled urbanization, will be violently erased.

While better solutions for water exist, as will be explained later, we believe that the Bisri Valley’s cultural landscape is worthy of a full-site protection, an option acknowledged by the bank policy OP 4.11 (Item 8).

¹ <https://en.calameo.com/read/003202948e9b47ca3e063>

² www.cdr.gov.lb/study/sdatl/English/NPMPLT.PD

II. Earthquake Threats

“It won’t be logical to stay in Bisri anymore, even if there is 1% risk. What should we tell our children? How are they going to build their homes here, and us the people who stayed and protected their lands in the worst days of war and occupation are now forced to leave. Couldn’t the World Bank find a better project for Lebanon?” Fadi Youssef, 55, Bisri³

“In 1956, an earthquake destroyed half of my village. If the dam is built, I fear the whole village will be ruined”. Hanna, 80, Bisri⁴

We have not forgotten the earthquake of 1956 that was centered in Bisri and resulted in the destruction of several towns in Lebanon. Our concerns regarding the Bisri Dam’s risks of reservoir-triggered seismicity (RTS) are growing by the day, as the pro-dam arguments provided by CDR and Bank staff fail to be convincing. In a previous complaint, it was explained how the Bisri Dam and corresponding lake will lay directly at an intersection of two active seismic faults, the Bisri Fault and the Roum Fault, and that any future water body behind the planned Bisri dam can potentially lead to the generation of a major earthquake similar to those reported in the historical record of Lebanon (See Annex A, B).

In response to these concerns, the Bank Management, referring to ICOLD bulletin 137, provided the following argument:

*“The increase of the energy potential due to the impounded reservoir is **practically insignificant** in view of the size of the actual seismic energy that would be released. **RTEs have occurred on dams with heights over 100 m** (while Bisri Dam will be 70 m high) and are suspected to have occurred on reservoir capacity exceeding 1 billion m³ (more than 10 times larger than that of the Bisri Dam). (See Annex C)*

The above World Bank statement is **incorrect** and **misleading**: First, the argument that RTS cases are “*suspected to have occurred on reservoir capacity exceeding 1 billion m³*” is unfounded. Second, while the ICOLD bulletin 137 (Annex D) does say that the probability of RTS occurrence increases with the increasing height of dams and the increasing size of the reservoirs, and that it needs to be considered “*in the first place*” for large dams with a height of over 100 m, the report continues to say that “***there are no clearly defined limits in this respect***” (p. 105). ICOLD bulletin 137 confirmed that a relatively large number of documented RTS cases has resulted in a consensus that they are realistic responses to reservoir impounding, and that several of these cases have occurred with dams way below 100m in depth and way below 1 billion m³ in volume (p.23), for example:

³ <https://www.facebook.com/BisriValley/videos/2051068478528973/>

⁴ <https://www.facebook.com/BisriValley/videos/403572613550007/>

- Camarillas Dam in Spain (Depth: 43m; Volume: 37 million m3)
- Marathon Dam in Greece (Depth: 60m; Volume: 41 million m3)
- Preve Di Cadore Dam in Italy (Depth: 98m; Volume: 69 million m3)
- Shenwo Dam in China (Depth: 75m; Volume: 790 million m3)
- Grandval Dam in France (Depth: 78m; Volume: 292 million m3)
- and many others...

The World Bank management also argued that “*RTE cases are very few compared to the total number of large reservoirs in the world*” and that only “*four are major RTE events with a magnitude over 6.0*” have been recorded. These statements reveal an alarming neglect of the serious risks of RTS, since ICOLD bulletin 137 confirms that the RTS incidence is **not negligible** (p. 21). It is worth noting that the report does not list all suspected RTS cases, but rather RTS cases that are frequently cited and accepted.

In fact, one of the accepted RTS cases is the Marathon Dam in Greece which is much smaller than the Bisri Dam (Depth: 60m; Volume: 41 million m3). Aggravated by the gradual impounding of water, this dam triggered an earthquake of 5.75 on the Richter scale. Such magnitude can have a destructive impact, causing damage to buildings and structures.

The international standards require the determination of the seismic hazard by performing an overall study for the dam site and its reservoir while **necessarily** covering RTS potential. ICOLD bulletin 137 (p.57) states that the best approach for each large dam (a large dam is defined by the dam industry as one **higher than 15m**) is to check through full neo-tectonic analyses for the existence of faults near the dam and reservoir and to assess what earthquake potential can be assigned to each fault. While a neo-tectonic analysis of the project area was conducted by Ata Elias in 2014 (see Annex E), it was flawed and inconclusive: the study neither **quantified nor assessed the RTS potential**, and was not followed by any detailed assessment of RTS. The technical decisions of approving the Bisri Dam by the Dam Safety Panel of Experts were largely based on the report of Dr. Ata Elias that by itself is scientifically debatable, while little notice was made to the rest of the geological and seismological studies of the region.

The Bank management’s focus remained on the safety of the dam as a structure, regardless of where it is located (i.e. at the intersection of 2 active faults) and what can result from having a dam and a corresponding lake in that very area. It is important to note that the dam’s ability to withstand an earthquake was never subject of our complaint. Also, ICOLD bulletin 137 states that **RTS concerns the existing infrastructure and buildings in the storage zone rather than the dam itself** (p.19).

During a Skype meeting with the Dam Safety Panel in 2017, the members did not sound very aware of the geological, seismological, and structural challenges of the area as follows:

- Dr. Kaare Höeg claimed that the Bisri Fault underneath the proposed dam was not active. Knowing that the Bisri Fault is definitely active (Annex A, B), such a wrong, unfounded, declaration from Dr. Höeg is shocking.
- Dr. Mustafa Erdik claimed the non-existence of the Bisri Fault by inaccurately referring to Dr. Tony Nemer's study on the seismic ruptures along the Roum fault (Nemer & Megraoui 2006), which showed an inadequate understanding of the referred material, and required an explanatory answer from Nemer himself who was present in the room.
- Dr. Mustafa Erdik refused to answer the question related to the RTS risk of the dam.
- The Panel did not sound appreciative of the facts that the lithology of the southern side of the Bisri reservoir behind the dam is a weakly consolidated sandstone, and that of the northern side is a karst-prone limestone. These lithologies will potentially cause the reservoir water to infiltrate into the subsurface and contaminate the water table of the region.

More recently, the World Bank management published a video of Prof. Mustafa Erdik, member of the Independent Design Review Board, to address the growing concerns over RTS in Lebanon. Erdik claimed the following⁵:

“To trigger earthquakes, you really need very large reservoirs. The reservoir capacity of the Bsri Dam is about 125 m³, whereas if you look at the dams that have triggered earthquakes – there are 3 or 5 of them (!) – their reservoir capacity is at least 30 to 200 times higher than that of the Bisri Dam (!)”. (Mustafa Erdik, 2018)

The use of such **erroneous** and **unfounded** figures, in a context where the lives and safety of people are at stake, is unacceptable, as we have listed several RTS cases that occurred with dams smaller than the Bisri Dam. In fact, Prof. Erdik's title as member of the Independent Design Review Board⁶ conflicts with his involvement in a study with CDR in 2014 for the very same project (see Annex F).

⁵ <https://www.worldbank.org/en/news/video/2018/03/22/bisri-dam-is-earthquake-resistant>

⁶ <http://www.worldbank.org/en/programs/bisri-dam#4>

III. Environmental and Social Impact Assessment

[...] *Every Sunday, Oussama Saad still visits his fields of eggplants, prunes, almonds and nectarines, which his father planted 60 years ago. "The connection between the land and the people is very strong," he said, plucking a pomegranate from an overhanging branch. "I don't want money. I want to live here. If we can't stop the dam, I will see if I can find another piece of land. But I don't think I can find a good place like this."* (DW, 2018)

A. According to the World Bank policies, *the borrower is responsible for carrying out the environmental impact assessment (EA). For Category A projects the borrower retains independent EA experts not affiliated with the project to carry out the EA. [Footnote 7 states: The borrower ensures that when individuals or entities are engaged to carry out EA activities, any conflict of interest is avoided. For example, when an independent EA is required, it is not carried out by the consultants hired to prepare the engineering design.]* (OP 4.01)

The borrower (CDR) appointed Dar al Handasah Shair and Partners for the Environmental Impact Assessment Study of the Bisri Dam (Lebanon Water Supply Augmentation Project) which is practically a critical component of the Greater Beirut Water Supply Project. However, CDR has appointed Dar al Handasah Shair and Partners for Construction Supervision Services in the Greater Beirut Water Supply Project (Tunnel and Pipeline Contract). This violates item 4 of OP 4.01 that requires an independent expertise to conduct the Environmental Assessments for Category A projects.

It is worth noting that Jean-Roger Mercier, the *Independent Environmental Advisor* who advised on the project as part of the Environmental and Social Panel (an additional requirement by OP 4.01), cannot be considered as a substitute for the independent experts who must carry out the EA and the related biodiversity surveys. Also, Mercier was a World Bank employee for more than 12 years, which raises doubts about his independence⁷.

B. In response to the complaint regarding the flaws in the ESIA and the rapid and short ecological surveys, the Bank Management claimed the following:

The "rapid assessment" and "short visits" referred to in the Ecological Assessment of the ESIA concerned only the first phase of the assessment in 2012, which was undertaken to characterize the baseline ecological conditions of the Project area and "was designed to be repeated during the post-construction surveys following the same and other updated methodology." In August 2013, a detailed phase of ecological assessment was undertaken, during which the BAP was consulted upon and finalized.

⁷ <https://www.linkedin.com/in/jean-roger-mercier-1370aa43/?originalSubdomain=fr>

However, our previous request was not concerned only with the biodiversity assessment of 2012, but also with the assessment of 2013 and the Biodiversity Action Plan (BAP) of 2014 as well, which are also **incomplete** and **inconclusive**. The BAP (Annex G) relied on “a rapid flora and fauna assessment” (p.31). No major updates were added to the first phase of the assessment (2012) resulting in a severe underestimation of the biodiversity. For example, the report identifies an approximate number of 50 plants in Bisri, which is a very low number for similar areas in Lebanon. The BAP says that “*due to the short time period, the report focuses on building up a groundwork database on biodiversity in the project site*”. We believe that a thorough, complete biodiversity assessment should precede the decision to finance a destructive project in a valley identified as a Natural Regional Park according to the National Physical Master Plan (CDR, 2009).

C. The World Bank team claimed that additional biodiversity surveys are currently being conducted by MORES, the firm in charge of the Ecological Compensation Plan. However, during a meeting we had with MORES on May 31st, 2019, the firm’s team claimed that their **current inventory of plants has reached 170 to 180 species**. Though we believe that this number is still low, it is around 3.5 times higher than the one in ESIA and BAP (50 species), which raises additional concerns about the validity of the original valuation of ecosystem services and the cost-to-benefit analysis. Moreover, we reiterate that the loss of the Bisri Valley’s unique landscape and ecology cannot be compensated.

D. **The ESIA is more than 5 years old**; the biodiversity surveys are 5 to 7 years old, and the Water Quality assessments are even older (8 years). This makes the ESIA invalid and even illegal because according to decree 8633 (Item 13) on the Principles of Environmental Impact Assessment (Annex H), the Ministry of Environment’s approval of **the ESIA is valid for only two years** in case the project’s works are not started.

IV. Water Balance and Analysis of Alternatives

“The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting” OP 4.04

A. **National Water Balance**: Although the Bisri Dam’s ESIA (2014) includes an analysis of alternatives, the analysis is **reductionist** and **inconclusive**. The ESIA claims that “*The last national groundwater assessment study dates back to 1970*” (Page 110 of 255). It also adopts the old assumption that the annual natural recharge rate of groundwater is 500 MCM, and that groundwater extraction, nationwide, totals 705 MCM, resulting in 205 MCM yearly deficits. These numbers are **outdated** and **irrelevant**: The State of the Environment Report⁸

⁸ www.undp.org.lb/communication/publications/downloads/SOER_en.pdf

(MOE/UNDP/ECODIT, 2011) recommended “*treat[ing] these numbers with caution because it is all based on measurements dating from the 1960s and 1970s*” (page 58). The Federal Institute for Geoscience and Natural Resources (BGR) who collaborated with CDR on the German-Lebanese Technical Cooperation Project between 2011 and 2014, described the provided water balance as “**wrong information**” since none of its components is monitored (no quality or quantity assessments of spring discharge were conducted). BGR stated that the massive gaps of data have led to wrong water infrastructure planning and failed investments (Annex I, J).

- B. The last national groundwater assessment study was published in 2014 by UNDP and MoEW⁹. Although the study was available prior to the ESIA’s latest update in May 2014, and the sub-reports were already available in 2013 (Check the Water Budget report in Annex K), the ESIA disregarded the new findings:

Even though the Groundwater Assessment identified problems in water management as well as regions of water stress, it stated that “***there is an overall surplus in the groundwater budget***” (Annex L). It showed that Lebanon's groundwater natural recharge amounts to 53% of the total renewable water resources, **varying between 4,728 and 7,263 MCM**. The groundwater discharge through streams, springs and extraction is estimated to be around 2,588 MCM, and the water budget is consequently positive, varying between 2,140 MCM for the dry year to 4,675 MCM for the wet year. The assessment reported that, despite the stress on some groundwater basins in Lebanon - a problem that can be addressed and mitigated - most of the groundwater basins are not under stress.

- C. The Bank Management claimed that the 2014 Assessment of Groundwater Resources of Lebanon confirmed “*a groundwater deficit of about 150 million m³ in the GBML and an associated decline in groundwater quality there*”¹⁰. This reference is **inaccurate** since the value of 150 m³ was attributed to the North Lebanon Cretaceous Basin (Basin 18) and not to the Greater Beirut Mount Lebanon (GBML) that is abundant with groundwater as shown in Annex M. Among the unstressed groundwater basins is the Kesrouane Jurassic Basin (Basin 16), closer to Beirut, with a clear surplus in the groundwater budget.
- D. The assessment of the actual demand in the Greater Beirut Area (GBA) should be based on actual data, and the assessment of the future demand should take into consideration both the increasing urbanization and potential mitigation measures to decrease daily consumption per capita. However, the ESIA unreasonably considered the water availability to be constant (100 MCM

⁹<https://www.undp.org/content/dam/lebanon/docs/Energy%20and%20Environment/Publications/Assessment%20of%20Groundwater%20Resources%20of%20Lebanon.pdf>.

¹⁰ Management Response to the Request for Inspection, p.18

from 2010 to 2035¹¹), while the estimated future demand relied on a relatively **high** consumption per capita per day.

- E. No investigation of the availability of groundwater or other water resources within a 15 km radius of Beirut (within Beirut and Mount Lebanon Water Establishment) was ever conducted by the relevant authorities. Such basic investigation requires the installation of flow monitoring stations for **at least one wet and one dry year** in springs within a 15 km radius of Beirut (namely Jeita, Qachqouch, Antelias, Daychounieh) along with a pumping test program for the existing wells (Qachqouch, Daychounieh, Baabda, etc...). These investigations will allow the identification of excess losses during high flow periods in the available karst springs/ potential exploitation of excess water from existing wells, along with actual deficit to be supplemented from other resources.

For instance, the average long-term discharge of the Jeita spring alone, neglected in the ESIA, was assessed by Raad and Margane (2013) in a WEAP model and was estimated at 172 MCM per year (Annex I) which is greater than the GBA's current water supply as assumed in the ESIA, let alone all other springs, as well as legal and illegal well extractions (See maps in Annex N).

The ESIA claims that “The identification of specific areas for groundwater abstraction to enhance water availability in Greater Beirut is beyond the scope of the present project” (ESIA, p.112). **The alternatives that were proposed are therefore limited and incomprehensive.**

- F. A study for the protection of the Jeita Spring was conducted in 2012 by the Federal Institute for Geoscience and Natural Resources (BGR). It stated that the Jeita catchment can provide enough water for the Greater Beirut area and that the water at its source has an excellent quality (Annex O). The study also elaborates that ***“it is more sustainable to invest in the protection of these precious water resources than in the treatment or conveyance of other more faraway resources to Beirut”***. The study shows that the losses in the existing canal between Jeita and Dbayeh WTP reaches 30% of the total flow, and that the current transmission tunnel is very old and too small (only 3.1m³/s). The report proved the ability of the Jeita Catchment area, if managed well, to fill the current gaps in the water supply for the Greater Beirut and Mount Lebanon Area. The cost of both improving the spring's capture and establishing a new water conveyor with a capacity of 7 m³/s was estimated at 30-50 million USD, a much cheaper solution than the Bisri Dam, the construction of which costs more than 617 million USD excluding costs of operation, maintenance and environmental degradation.

¹¹ ESIA, Volume 1, Table 7.8, Page 122 of 255

- G. The Analysis of Alternatives did not assess Artificial Recharge (AR), even though AR is an evident option in a country like Lebanon where more than 50% of its water resources infiltrate into the underground. **The potential artificial recharge volume for Beirut and Mount Lebanon varies between 92.9 and 136.3 MCM (Annex P).**
- H. The Analysis of Alternatives did not assess **Managed Aquifer Recharge (MAR) dams** that would enhance spring discharge in the GBA. A proposal for MAR dams in the Jeita catchment area was presented by BGR in 2014 with a total capacity of **27 MCM**. The ESIA, however, only assessed 3 large-scale, destructive storage dams (Annex Q).

To sum up, we propose a comprehensive, hybrid, low risk, and environmentally conscious water management plan, reforming the groundwater sector, providing additional water for the GBA from wells and springs within a 15 km radius of Beirut, improving the capture and efficiency of the Jeita Spring and the associated network, and implementing MAR and Artificial Recharge projects in the GBA.

V. Water Quantity of the GBWSP and the Bisri Dam

- A. The flow in Awali as adopted in the ESIA relies on gauging stations **installed on the Awali River**. The flow is collected on a monthly basis, **leading to errors in estimation for karst springs**. An appropriate investigation of the flow and water availability in the springs feeding the Awali River and other resources of the Bisri Reservoir would require the installation of flow monitoring stations for at least one wet and one dry year in Jezzine, Niha, Bater, etc. and on the river course, in order to estimate correctly the quantities of water expected in the River.
- B. The studies did not include the necessary conceptualization of groundwater flow in the Awali catchment and **in each of the spring catchment feeding into Awali**: No hydrogeological model to assess groundwater flow and boundary conditions, sources and sinks in the study area was performed. Such model is essential for future forecast.
- C. The studies did not include an appropriate assessment of the impact of climate change (2050) on the water resources feeding into the Bisri Dam, and it did not evaluate alternatives to limit water shortage: The variation of water availability (Precipitation, infiltration, surface runoff, and Evapotranspiration) with climate change is not tackled. **The assumption that surface runoff increases with climate change is not supported with appropriate references.**
- D. Following concerns about the water quantities in the Greater Beirut Water Supply Project (GBWSP), the World Bank released a document (Annex R) stating that the GBWSP water will require a mix of the following sources:

- Awali/Bisri River: 60 – 100 MCM
- Qaraoun Reservoir / Litani River: 60 MCM
- Ain Zarqa spring: 14 – 41 MCM
- Jezzine spring: 5 –17 MCM

However, officials in the Litani River Authority (LRA) spoke out against these “*inflated numbers*” (Annex S). LRA confirmed that, as per the Decree No 14522 on the allocation of water resources of the Litani River, the Qaraoun Reservoir cannot provide 60 MCM of water for the Greater Beirut Area. The World Bank team shortly released a modified version of their document (Annex T), replacing the diagram of page 2 with another one that shows a reduced amount of water from Qaraoun (50 MCM). Still, the President of LRA Sami Alawiyye confirmed that the amount of 50 MCM “*is the maximum possible because of the pressure on the Qaraoun water due to unfair water exploitation by the Bekaa and South Water Authorities, and because of the need to secure adequate water sources for LRA’s irrigation projects*” (Al-Akhbar, 2019).

- E. LRA criticized the claim that an amount of 41 MCM will be provided from Ain Zarqa spring “*currently used for drinking and domestic purposes in the western Bekaa and Rashaya*”.
- F. LRA pointed out a potential conflict between the GBWSP and the Canal 800 project that aims to funnel water from the Qaraoun Reservoir to the South. According to LRA, a technical investigation showed that the ongoing implementation of Canal 800 will significantly affect the amounts of water mentioned in the GBWSP and may lead to the project’s failure during dry years.

VI. Cost Effectiveness

We, the Lebanese citizens, are paying high prices due to the failed strategies of surface water storage. The building of dams in Lebanon has already resulted in unexpected increases of water bills, mainly in the Greater Beirut Area¹². The construction and operation of the Bisri Dam will cause further increases the residents of the Capital and its suburbs may not afford.

Researchers at Oxford University¹³ have found that policymakers systematically underestimate the costs and time required to implement large dam projects. The actual costs of large dams are 96% higher than the estimate, on average, and implementation takes 44% longer than scheduled. The report thus explicitly states that large dams are not economical: “*We find that even before*

¹² <https://www.elnashra.com/news/show/1293543>

¹³ <https://www.sciencedirect.com/science/article/pii/S0301421513010926>

accounting for negative impacts on human society and environment, the actual construction costs of large dams are too high to yield a positive return” (Ansar et al., 2013). The study is based on the most comprehensive economic analysis of large dams ever undertaken. “Large dams” refers to dams with a wall height in excess of 15m.

Local Studies and reports show that the current experience in dam building and management in Lebanon has proven to be inefficient and costly (See extracts of the Strategic EA of the NWSS in Annex U). The Brissa Dam in Donniyye, completed in 2013, failed to collect water due to its location on karstic limestone surface allowing for water infiltration^{14,15}. The dam of Qaisamani inaugurated more than two years ago hasn’t exceeded 25% of its capacity until the heaviest rain season Lebanon has known in three decades. The dam also resulted in the pollution of the Shaghour Spring in Hammana^{16,17,18}. The Balaa Dam, still under construction, is placed on top of sinkholes and chasms, which is delaying the works and causing unexpected costs for grouting and isolation¹⁹. Likewise, the Chabrouh Dam in Keserwan leaks more than 30,000 m³ per day (Bisri ESIA, 2014) and costs the Government exorbitant amounts of money for maintenance and repair. Finally, the Qaraoun Dam is extremely contaminated with heavy metals and Cyanobacteria, which makes its water unsuitable for domestic use or even for irrigation²⁰.

In an attempt to promote the choice of the Bisri Dam, the World Bank team adopted a misleading communication about the costs and efficiency of the project. For instance, they claimed that water will flow to Beirut *entirely by gravity*. This claim was also used by CDR to undermine the option of groundwater extraction that would require pumping. The World Bank team stated the following²¹:

Water will flow to Beirut entirely by gravity and will not incur pumping costs through a 26-kilometer underground tunnel and be treated at the Wardanieh Water treatment plant on the way.

Despite these claims, water conveyance to the residents of the GBA will require pumping. Engineers working on the Damour crossing site reported that the inverted siphon in Damour is equipped with a pumping facility as it cannot function entirely by gravity²². Additionally, at least 9 major pumping stations will be necessary to convey water to the neighborhoods in GBA (Annex V). These stations include: Naame Nord Bas (29 KW), Aramoun Sud Bas (34 KW), Khalde Bas

¹⁴ <https://www.almodon.com/print/3f92bc01-fe51-4be0-a318-fbbce8eb2c32/3b6582b0-29c0-4c7d-9726-d86c1e2a4fcc>

¹⁵ <https://newspaper.annahar.com/article/66077>

¹⁶ www.almodon.com/politics/2017/6/12/القيسماني-يثبت-فشل-السدود-في-لبنان/

¹⁷ <https://al-akhbar.com/Community/250371>

¹⁸ <http://www.aljournhouria.com/news/index/103471>

¹⁹ <https://www.lebanondebate.com/news/352182>

²⁰ www.greenarea.me/ar/241976/السبانيو-بكتير-يامن-القرعون-الى-انان-ف/

²¹ <http://www.worldbank.org/en/programs/bisri-dam#2>

²² During a visit of the TV5 team to Damour, the engineers told the reporters that a pumping station is necessary for the inverted siphon to function properly.

(37 KW), Qobbe Bas (37 KW), Choueifet Bas (111 KW), Kfarshima Bas (97 KW), Kfarshima Haut (26 KW), Hazmieh (271 KW) and Hazmieh-Hadath (134 KW).

The costs of pumping and other costs related to operation and maintenance were not appropriately assessed in both the “analysis of alternatives” of the ESIA and the feasibility report of January 2011. For instance, the analysis of alternatives briefly states that the project incurs “little or no pumping” costs (ESIA, Page lxviii of xciv). While the analysis criticizes the increased household expenditure on water for both the “without project alternative” and the “non-dam alternative”, it does not include any comprehensive investigation of the post-construction price of water and the impact of the project on the household expenditure on water in the GBA.

At the national level, the alarming situation of the Lebanese economy requires a serious reconsideration of big loans, especially the Bisri Dam’s. Recently, two big financial services companies^{23,24} downgraded Lebanon’s credit rating, fearing that the country might default. By giving Lebanon a big loan, the Bank is helping deepen the economic crisis and might not be able to get its money back while there are other viable, less harmful, and cheaper solutions for water.

VII. Misleading Official Communication

- A. In February 2018, the Bank Management released a brochure (Annex W) claiming the project will “*protect biodiversity*”, and that “*the biodiversity result of the Bisri Dam is ideally with net gains and at the minimum with no loss*”. During a August 2018 meeting the campaign had with MORES, the company in charge of the Ecological Compensation Plan, their director, Raji Maasri, acknowledged that a “no-loss scenario is practically impossible”. Additionally, the biodiversity surveys on which the offset plans have relied are incomplete, which makes any effort to reach a no-loss situation impossible in this respect.

The brochure also claimed that “cultural and archaeological sites [will be] preserved”. This statement distorts the actual meaning of a cultural and archaeological site. The dismantling of the valley’s temples, bridges, houses, and all other remains does not protect the historical sites per se but may at best protect pieces and parts of these physical remains. **The cultural landscape of the Bisri Valley, unique in Lebanon and the Middle East, will be totally lost.**

Moreover, both the World Bank and CDR launched a paid campaign on social media with false advertisements about the dam. The campaign exploitatively portrays a tragic situation where **Lebanese children** are suffering from drought and thirst (Annex V). This catastrophist

²³ <https://en.annahar.com/article/927924-moodys-downgrades-lebanons-credit-rating>

²⁴ <https://www.thenational.ae/business/economy/s-p-downgrades-lebanon-s-credit-outlook-to-negative-from-stable-1.832106>

portrayal is, of course, completely inaccurate, as Lebanon has never experienced, nor is it currently experiencing, extreme water scarcity. Seasonal shortages have always been due to bad management and deficient distribution system.

- B. During a recent policy dialogue²⁵ at the American University of Beirut on March 27th, 2019, the Bank's Vice President for the Middle East and North Africa (MENA), Ferid Belhaj, claimed that Lebanon can export water to Jordan (minute 33). Similar claims were made by Minister Gebran Bassil and Speaker of the Parliament Nabih Berri^{26,27}. These recent statements contradict the National Water Sector Strategy, endorsed by the aforementioned local and international policy makers themselves, that claims Lebanon suffers from *water scarcity*.
- C. During an April 25, 2019 interview with TRT Channel²⁸, the World Bank VP for MENA, Ferid Belhaj, reiterated a number of erroneous and false statements and claims regarding the project. Insisting that the Bisri Dam is a “zero risk” investment, Belhaj also claimed that the project garnered complete **consensus** both from professionals and average citizens. This could not be further from the truth. Despite his claim that “every single expert” in geology and seismology is in a consensus with the dam, many academics and professionals in the field not only contradict and contest it with well-documented evidence that highlights the dangers of the dam, but have been overwhelmingly outspoken against the Bisri Dam project in demonstrations, at discussions, namely the last held at Issam Fares Institute in March, and in their personal scholarship. They have stood alongside citizen stakeholders, joining the campaign to protect Bisri Valley from all areas and corners of Lebanon to stop the project that will ensure the destruction of the environment and the livelihood of Bisri's residents. Belhaj also made false statements claiming the lack of viable alternatives, stating in the interview that “*We've been talking to people and asking them to come up with alternatives, and frankly none of them can hold water*”, despite the well-documented presence of viable and ecologically conscious alternatives.

VIII. Previous Dialogue and Complaints

- After the Panel's first recommendation, we initiated a series of meetings with members of Parliament representing different parties (MPs Ziad Assouad, Paula Yacoubian, Nazih Najem, Ibrahim Azar, Oussama Saada, Salim Khoury, Farid El Khazen, Ziad Hawat, Samy Gemayel, Elias Hankash, Taymour Jounblat, Alain Aoun, and others).

²⁵ <https://www.facebook.com/aub.ifi/videos/544517059403070/>

²⁶ <https://www.annahar.com/article/926639>

²⁷ <https://www.lebanondebate.com/news/424731>

²⁸ <https://www.youtube.com/watch?v=rxkxnJWLWBE&t=409s>

- We met with the Bank Staff on March 29th, 2019 and we discussed the issues detailed in this request. The Bank team promised to conduct four different expert meetings to discuss the topics. Unfortunately, none of the meetings were held as promised by the Bank, and when we tried to follow up, the Bank expressed a preference for having the borrower present in the meetings (See correspondence in Annex X). However, the borrower has never been ready to communicate with us.
- During the visit of the World Bank's Vice President for MENA in March, he said that "*If opponents have an alternative solution, please put forward*"²⁹, disregarding all the previous dialogue and the alternative solutions we presented. Meanwhile, he continued to publicly advertise the project with false statements as explained earlier.
- On April 4th, 2019, the General Secretariat of the Parliament, in cooperation with the Committee of Public Works, Transport, Energy and Water, organized a seminar on the Bisri Dam, where our experts confronted CDR's with evidence and proofs. The Parliament recommended that CDR must provide and publish the geological and financial studies and to consider alternative solutions for water³⁰.

Unfortunately, CDR has not published the studies until a few days ago claiming that they did not receive an official request from the Parliament, though CDR attended the seminar. **Meanwhile, some of the recommendations were suddenly deleted from the Parliament's official website**^{31,32}.

On June 14th, 2019, CDR finally published some studies on its website. While we can already identify many discrepancies and gaps in these documents, we will send the Panel detailed comments on the material soon.

- Despite the World Bank team's promise to hold meetings with all the concerned parties, the Bank held a separate meeting with the Committee of Public Works, Transport, Energy and Water on May 23rd, 2019, excluding the members of the Civil Society. During the meeting, the Regional World Bank director, Saroj Kumar, stated that he's an expert in Dams and that he assures the Committee that no dangers can result from the project³³, though Kumar was not in a position to give an expert's evaluation or judgement. In fact, during our meeting with him on March 29th, he promised to meet with our experts in Geology and Seismology to better understand the issue, but has not yet reached out.

²⁹ <https://www.elnashra.com/news/show/1297832>

³⁰ <http://nna-leb.gov.lb/ar/show-news/401698/nna-leb.gov.lb/ar>

³¹ www.lp.gov.lb/ContentRecordDetails.aspx?id=29288&title=ندوة-حوار-حول-مشروع-سد-بصري-بين-الواقع-والهواجس

³² <https://al-akhbar.com/Community/270950>

³³ <https://www.lp.gov.lb/ContentRecordDetails.aspx?id=29442>

- The Order of Engineers invited all concerned parties to a public debate about the Bisri Dam on April 17th. However, CDR refused to attend, and the debate was consequently cancelled. Also, the President of the Order of Engineers released a statement condemning the exclusion of the Order from the scientific debates about the Dam in Lebanon³⁴.

IX. Increased Violence

The excessive use of force by the Government against the local communities and activists is alarming. On June 9th, 2019, five men ambushed and beat the Coordinator of the Save the Bisri Valley Campaign, [REDACTED], while he was leading a tour of the area, with one attacker biting off a part of his left ear³⁵. In fact, some of the assailants were connected with the Council for Development and Reconstruction, the government-affiliated body that is overseeing the Bisri Dam project. This incidence is part of a series of oppression exercised against activists and locals.

Moreover, the Government is responding to the local communities' peaceful, nonviolent protests with an exaggerated use of armed forces³⁶. Hundreds of military members, anti-riot police, and private security forces, are being mobilized. Some landowners and farmers are banned from accessing their lands only because they are participating in the protests. Others are threatened of being expelled from their jobs in governmental institutions for the very same reason.

During the Lebanese Civil War (1975-1990) the valley was a demarcation line between the two communities in conflict. **Today, the project may ignite old rivalry between the two sides of the valley as it triggers feelings of oppression and injustice with the deterioration of livelihoods and the loss of access to lands and properties³⁷.**

³⁴ <http://www.oea.org.lb/Arabic/NewsDetails.aspx?pageid=6142>

³⁵ <http://www.dailystar.com.lb/News/Lebanon-News/2019/Jun-18/485486-aub-faculty-members-slam-bisri-attack.ashx>

³⁶ <https://globalvoices.org/2019/04/13/inside-the-lebanese-campaign-to-stop-a-world-bank-funded-dam-project/>

³⁷ <https://www.facebook.com/BisriValley/videos/2337997869803346/>

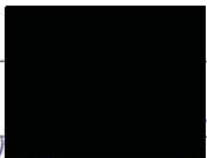
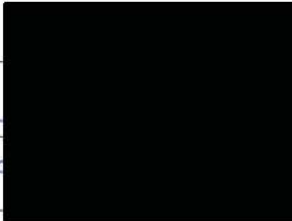
X. Appeal


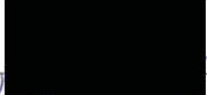
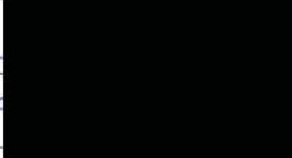
We ask the Inspection Panel to use all the expertise to investigate the reported violations, based on the regulations included in this request, but also on other regulations the Panel considers relevant.



We understand that some of the project's proceeds have been disbursed, mainly on expropriation. However, the costs of construction, operation and maintenance, added to the risks of earthquakes, the indirect displacement of local communities, the irreversible destruction of the riparian ecosystem, the loss of forests and agricultural land, the dismantling of archaeological sites, and the diminishing of land value downstream, all outweigh any potential benefit from pursuing the ill-advised dam, especially that better and cheaper alternatives exist.

It is therefore important to turn this issue into a major opportunity for Lebanon and the region's environmental and historical heritage, to make another use of the country's resources and to envision a sustainable water management plan for the Greater Beirut Area.

As advised in your Operating Procedures, this Request for Inspection is brief. We can provide you with more details if needed. We thank you and we look forward to your response.

DATE: 24/6/2019  

SIGNATURE:   

CONTACT ADDRESS:  Lebanon 

Attachments: ☒ [Yes] ☐ [No]

We authorize you to make this Request public ☒ [Yes] ☐ [No]

We want the attached locals' signatures to remain anonymous ☒ [Yes] ☐ [No]

The below listed Annexes are available upon request

Annexes:

- A. Bisri dam project from the geological and seismological perspectives (Nemer, 2018)
- B. Regarding the reservoir induced seismicity effect of the Bisri dam (Nemer, 2018)
- C. Extract from Bank Management Response (Inspection Panel, 2018)
- D. ICOLD bulletin 137
- E. Neotectonic & Seismic Sources for the Bisri Dam site (Elias, 2014)
- F. Earthquake Hazard of the Bisri dam (Erdik et al., 2014)
- G. Biodiversity Action Plan (Dar, 2014)
- H. Decree 8633 on EIA
- I. Hazards to Groundwater and Assessment of Pollution Risk in the Jeita Spring Catchment (BGR and CDR, 2013)
- J. Protection of Jeita Spring: Overview of Project Results (BGR, 2014)
- K. Data Synthesis & Basin Water Resources Characterization Report: Water Budget and Safe Yield (UNDP, 2013)
- L. Extracts (1) from the Assessment of the Groundwater Resources of Lebanon (UNDP, 2014)
- M. Extracts (2) and comments on the Assessment of the Groundwater Resources of Lebanon (UNDP, 2014)
- N. Maps of Rainfall, Springs, and Wells in the GBML
- O. Jeita Spring Protection Project, Phase I: Feasibility Study (Gitect and BGR, 2011)
- P. Data Synthesis & Basin Water Resources Characterization Report: Artificial Recharge (UNDP, 2013)
- Q. Water Supply in the Jeita Catchment & for Beirut (BGR, 2012)
- R. Water Quality Note 1 (World Bank, 2018)
- S. Comments of the Litani River Authority (Al-Akhbar, 2018)
- T. Extracts from the Strategic Environmental Assessment of the NWSS (Ecodit, 2015)
- U. Extracts from the GBWSP's EIA (CDR, 2010)
- V. Bisri Dam brochure (World Bank, 2018)
- W. Bisri Dam Advertisement (World Bank and CDR, 2018)
- X. Email correspondence with Bank Management
- Y. Petition:
 - a. Lebanon Eco Movement (LEM) profile
 - b. Online petition

Subsequent submission:

- Letter by four members of Parliament, dated August 5, 2019
- Open letter by 15 international and regional civil society organizations
- The Bisri dam project: A dam on the seismogenic Roum fault, Lebanon (Nemer, 2019)

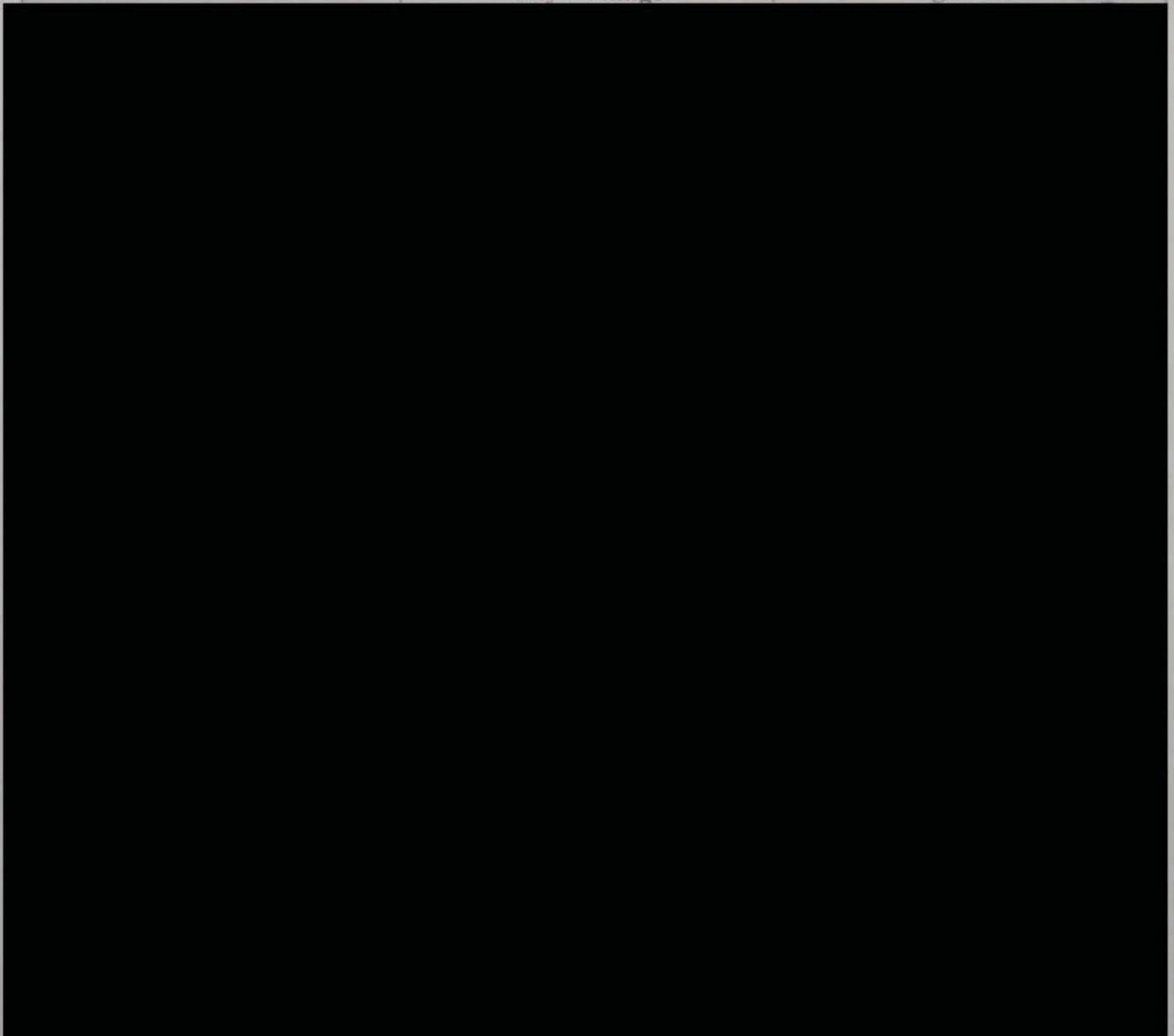
Petition

To: The World Bank's Inspection Panel

Subject: Request to withdraw the funding for the Bisri Dam

We, the undersigned, authorize Lebanon Eco Movement to represent our concerns regarding the Bisri Dam Project. We are against the funding of this project because of its catastrophic impacts on our safety, environment, cultural heritage, and livelihood.

Name	City / Village	Signature
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Name	City/Village	Signature



Name	City/Village	Signature
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[illegible]

June 29th, 2019

To: Executive Secretary, the Inspection Panel
1818 H Street NW, MSN 10 - 1007, Washington, DC 20433, USA

REQUEST FOR AN INSPECTION ON THE IMPACTS OF THE BISRI DAM PROJECT IN LEBANON

II. Earthquake Threats (Part 2):

“In case that a capable fault with documented late Quaternary activity crosses the dam site, the best advice is to select another site, not exposed to such kind of hazard”.

ICOLD Bulletin 137, p.59

On June 14th, following the continued pressure from local communities, activists, and members of Parliament, CDR finally published the long-awaited studies - mostly related to the geological and seismological aspects of the project - that were hidden from the public since 2014. However, in an attempt to divert attention away from the content of the studies, CDR released a statement reiterating the denial of the existence of an active seismic fault under the project's site (see CDR statement attached).

All previous geological and seismological reports conducted by local and international firms (Dar Al-Handasa Nazih and Taleb, Dar Al-Handasa Shair and Partners, NOVEC, ECI, and others) in addition to the reports by Dr. Tony Nemer from the American University of Beirut, confirmed the existence of an active fault under the Bisri Dam site. **Paradoxically, only the reports conducted lately by CDR (the borrower) claim the opposite, without providing any scientific explanation for the new, unfounded claim.**

Among the reports that confirm the presence of the fault:

1. Report 7, p.9 (Dar al Handasa and NOVEC): *“Among the faults that affect the site of the dam is a main fault distinguished by the importance of its vertical discharge of hundreds of meters. The fault passes at the foot of the left bank. This major fault was considered during previous dam studies as a segment of the Roum Fault. A resumption of seismotectonic studies, conducted as part of this update of the preliminary draft, concluded the passage of the Roum fault outside the dam site. It attributed the major fault identified in the riverbed of Bisri to a tectonic activity different from that of the other active faults in Lebanon”.*

The map in report 7, p.60 (Dar al Handasa and NOVEC) clearly shows that **a major fault passes under the dam site.**

Report 7, p.11 (Dar al Handasa and NOVEC): *“The configuration of the main fault of the site is deduced from the interpretation of geological survey data”.*

The cross section in Report 7, p.64-65 (Dar al Handasa and NOVEC) also shows the main fault under the dam site.

The aforementioned maps and sections are documented and accepted in the reports 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 25, 26, 32, and 35. **Only the reports 3 and 4, conducted by Ata Elias and Mustafa Erdik for CDR, have different claims.**

2. Report 32, p.70-71 refers to a study conducted by ECI. The study shows **that the Roum Fault (or a ramification of it) passes underneath the dam site**, contrary to the claims of CDR.
3. Report 36, p.2 refers to a technical note by Prof. Antonio Gens stating the following: *“Bisri Dam is sited in a highly seismic zone; it is of interest, therefore, to assess the potential for liquefaction of the foundation soil”*.
4. Report 31, p.169 states that *“the geological structure at Bisri comprises a complex interaction of faults, folds and mass movements. [...] Two major faults pass close to the dam axis, the Roum Fault and the Qalaat el Hambra Fault”* (another nomenclature of the Bisri Fault).

The report continues to say: *“Boreholes along the dam axis encountered a succession of older beds of J5-J7 abruptly displaced against the C2a, for which the Jurassic succession must have been uplifted along a major fault. The report interprets this fault to be the subsurface extension of the Roum Fault”*.

Report 31, p.171: *“The closest surface expression of the Roum Fault is about 2Km SW of the dam site, but its subsurface trace or an offshoot of it appears to continue into the Awali valley and beneath the proposed dam site”*.

Report 31, p.172: *“That the Roum Fault, known to be significantly active, may pass under the dam and reservoir site presents a major risk to the viability of the Bisri project”*.

Report 31, p.269: *“Disadvantages: **High seismic risk**”*.

5. Report 32, p.55: *“The closest surface trace of the Roum Fault to the Bisri dam site is located about 2 km southwest of the dam site. However, it appears that the fault continues within the Bisri River Valley (covered by alluvial deposits) to the vicinity of proposed dam axis. [...] **Most of the faults within the project area are considered to be active**”*.

Report 32, p.56: *“A major risk is stated in the report (R2) whereby the Roum Fault and/or other associated faults pass under the dam axes. Roum Fault is a highly active fault and the source of earthquakes. The occurrence of such a fault under the dam axis, if proven, places a severe constraint on the dam feasibility and a high risk on downstream developments in case of dam rupture”*.

*Report 32, p.56: “The reservoir area as observed during our site visit is characterized by block tectonics rendering the prediction of **the hydrogeological regime under water load very complex and with high degree of uncertainty**”.*

Now that the existence of the Bisri Fault is confirmed, is the fault active?

6. Report 14, p.8 shows refractions in the layers under the riverbed, which is a proof that the fault is active.
7. In the report 4, p.12 (by Ata Elias of CDR), the existence of geological terraces is not explained. In fact, **these terraces are the result of the layers moving upwards (poster 9) and the river moving downwards. This is an additional proof that the fault is indeed active.**

Atta Elias refuted all the conclusions in the aforementioned reports and studies regarding the existence of an active seismic fault under the Bisri River. Mustafa Erdik, also working for CDR and more recently for the Dam Safety Panel, approved Elias’ unfounded statements. They both dismissed tens of documented scientific evidence.

As explained earlier, we had expressed our concerns regarding the dam’s risks of RTS to the different authorities, especially that more than 35,000 people live near the Dam and Reservoir area, while the impact of an induced earthquake can reach far beyond the project’s direct vicinity, affecting other cities and hundreds of thousands of inhabitants. Unfortunately, the answers provided by the Bank and CDR were either that the **Bisri Fault does not exist (!)**, or that **it is not active (!)**, both claims being inaccurate.

Considering the serious violation of the international standards, and given CDR’s manipulation and concealment of evidence regarding the dam’s siting on an active seismic fault, in addition to the false interpretations of the ICOLD Bulletin 137, we ask the World Bank’s Inspection Panel to take the necessary action to protect the Lebanese citizens against the catastrophic threats this dam poses to Lebanon.