

**TEAM RESPECTING THE GOVERNMENT ACTIONS REQUIRED IN  
PREPARATION FOR CONCLUSION OF THE DEAD SEA CONCESSION PERIOD**

**INTERIM REPORT FOR PUBLIC HEARING  
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## Preface

The Team respecting “the government actions required in preparation of conclusion of the Dead Sea concession period” was established based on the conclusions of the Committee for Examination of the Government Take Received for Private Use of National Natural Resources (hereinafter: the “Sheshinski 2 Committee”).<sup>1</sup> This, in light of the concerns that arose in the course of the Committee’s discussions, whereby the lack of certainty regarding the future of the Dead Sea concession following its expiration in 2030 makes it difficult to manage an effective investment policy from a long-term perspective.

The Dead Sea and its surroundings are natural resources belonging to public and held by the State in favor of the public under a “public trust”.<sup>2</sup> The State must safeguard these natural resources and utilize them in a fashion that serves the public interest. Based on this starting point, the ultimate goal the Team has set itself when formulating its recommendations was to “**maximize the economic value of the Dead Sea while incorporating social and environmental values**”.

In order to achieve this ultimate goal, the Team examined a broad variety of data respecting the Dead Sea and the resource extraction activities carried out under the concession. The Team also reviewed in depth several alternatives of the manner of allocation of future rights in the Dead Sea. Based on its analysis of the entirety of such data and information, the Team has formulated its recommendations.

The Team’s recommendations are twofold: first, **a series of guidelines**, formed in light of the understanding of the unique circumstances relating to the Dead Sea concession; second, **a series of recommended actions which that government should take in order to implement the said guidelines**.

**The Team recommends the establishment of several sub-teams that would perform an in-depth examination of the issues pursuant to this report, and act to execute the said actions which the government should take, as soon as possible, and as detailed below.**

It should be noted that the Team’s recommendations are based, among other things, on the opinions of advisors Mr. Yarom Ariav (respecting “the Dead Sea concession – potential buyers’ analysis”) and Prof. Motti Perry (respecting “analysis of the competitive structure of economic activity in the Dead Sea and review of the optimal sale process”).

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<sup>1</sup> Committee for Examination of the Government Take Received for Private Use of National Natural Resources, **Conclusions of the Committee’s Report** (2014), at pp. 14-15.

<sup>2</sup> **State of Israel v. Dead Sea Works**, Arbitration Award (Partial), dated May 19, 2014, at p. 1; AdminApp (Administrative) 2273/03 **Azure Island General Partnership (Appellant in AdminApp 2273/03) v. Society for the Protection of Nature in Israel**, Tak-Sup 2006 (4) 3390, 3404 (2006); Committee for Examination of the Government Take Received for Private Use of National Natural Resources, **Legal Opinion, Attorney Avi Licht, Deputy Attorney General (Economic-Fiscal) – Appendix A of the Committee’s Report** (2014), at pp. 4-5.

**(A) Material issues underlying the recommendations**

Over the course of the Team's work several key data arose, having an impact on the Team's recommendations as presented later on:

1. The resource extraction activity generates hundreds of millions of ILS in revenue for the State, lucrative jobs for thousands of workers at the plants, and employment for thousands more, serving as suppliers (directly and indirectly) of the plants.<sup>3</sup>
2. Alongside the great benefits, the activity also has negative impacts. In order to extract the resources, Dead Sea plants pump (on the Israeli side) about 150-200 million cubic meters (net) a year from the northern basin of the Dead Sea.<sup>4</sup> In so doing, the plants contribute to the decrease of the Dead Sea water level, which has numerous negative effects on the environment, in terms of injury to the landscape, the creation of sinkholes, the undermining of streams, and injury to nature reserves and infrastructures. Currently, the total deficit in the Dead Sea's water balance amounts to about 700-800 million cubic meters per year, hence the pumping of water from the northern basin for purposes of the Dead Sea plants is not the main cause of the Dead Sea's decreasing water level. Nonetheless, the more the sea level decreases, its salinity and density increase and the rate of evaporation declines, and thus the relative contribution of the plants' water pumping to the decreasing water level is expected to rise and become more significant;<sup>5</sup> in addition, in case projects designed to decelerate the water level decrease rate, such as the Two Seas Conveyance project, are carried out in the future, this may also cause the relative contribution of the plants to the water level decrease to grow.
3. The concession to extract resources from the Dead Sea (the "Concession") was granted in 1961 to Dead Sea Works ("DSW"), which was, at the time, a government-owned company. The Concession was granted to DSW through a concession note, anchored in legislation under the Dead Sea Concession Law, 5721-1961 (the "Concession Law"). The Concession was extended through legislative amendment in 1986, and shall remain in effect until 2030. During the 1990s the Israeli government privatized Israel Chemicals Ltd., the parent company of DSW.

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<sup>3</sup> As a general indication of the economic benefits stemming from the resource extraction activity, it may be recalled that according to ICL's financial statement for 2017, the operating profit of the Potash and Magnesium segment for the said year amounted to \$282 million, and that of the Industrial Products segment (mainly bromine and products thereof) amounted to \$303 million. It would be clarified that these segments also include economic activity that does not derive from the extraction of resources from the Dead Sea (including operations outside Israel), and yet it can be assumed that the majority of the profit does indeed stem from the activity based on the Dead Sea. To that should be added the indirect benefits, stemming as aforesaid from the operation of the plants in terms of employments and salaries.

<sup>4</sup> Thus, according to ICL's financial statement for 2017 (p. 102) – in 2017 ICL pumped about 420 million cubic meters from the northern basin of the Dead Sea, and at the end of the process discharged about 270 million cubic meters back into the Sea, so the "net" pumping amounted to about 150 million cubic meters. A similar estimation was presented before the Team by the Water Authority ("net" pumping, in the years 2002-2013, ranging between 140 and 170 million cubic meters per year); this, while the Geological Survey of Israel presented before the Team a slightly higher estimation (pumping of about 350 million cubic meters and discharge of about 160 million cubic meters).

<sup>5</sup> Red Sea – Dead Sea Water Conveyance Study Program – Dead Sea Study, 2011.

4. Two sections of the concession note in the Concession Law refer to the conclusion of the concession period:

Section 24 of the concession note provides that, upon conclusion of the concession period, all tangible and fixed assets belonging to the concession-holder shall become the property of the government. The government must pay the concession-holder, in consideration thereof, the depreciated replacement value thereof, as is on the conclusion date. It would be noted that, at this stage, the administrative work respecting determination of such payment has yet to be completed. Under the concession note, calculation of the value of the assets must also take into account the state of maintenance thereof by the concession-holder, so as to prevent a situation wherein the government is paying for assets which are physically dilapidated or unusable. In addition, a smooth transfer is to be arranged, vis-à-vis ICL, of the assets unto the entity replacing it in operation of the Concession (insofar as it is a different entity). Section 24 further provides that in the final ten years of the concession period (i.e., as of 2020), governmental approval is required for all investments whose lifespan extends beyond 2030; this, among other things, on the background of the said beginning of the Section, whereby the government must pay for the concession-holder's assets transferred unto the government.

Section 25 of the concession note provides:

“In case that upon expiration of the concession the government seeks to offer a new concession for the extraction of minerals, resources and chemicals from the Dead Sea to any person other than the concession holder, the government shall first offer such new concession to concession-holder, under terms no less favorable than those it intends to offer to any such other person.”

Each of the alternatives examined below takes into account the manner of implementation of this Section. This, among other things, in light of the language of the Section and the purpose of the Law, and in light of the principle of equality governing administrative law, and the duties of the State as public trustee of natural resources.

5. Analysis of potential buyers to acquire the Dead Sea concession upon conclusion of the concession period indicates that there is a broad range of possible candidates. However, and for the sake of caution, the Team believes that one must also consider that the actual group of 'natural' candidates to make serious offers is in fact smaller, and includes chiefly international companies currently involved in the field of potash extraction.
6. A theoretical analysis of the alternatives for carrying out a bidding process indicates that ICL's considerable information advantage in connection with the activity for extraction of resources from the Dead Sea, alongside the advantage stemming from the existence of downstream industries owned by ICL, may cause other offers to be extremely cautious, as companies would hesitate to make offers higher or even identical to that made by ICL. In an extreme scenario, this could cause the bidding process to fail, i.e. the absence of any serious offers.

7. Until 2030, and particularly during the final years prior to the conclusion of the Concession, ICL's extraction activities will be carried out under a cloud of uncertainty regarding the future. In light of this, concerns rise that this would adversely affect the investments and proper maintenance of the Concession on ICL's part, in a manner that would adversely affect both its own revenues and the State's revenues from the Concession, and undermine the value of the future Concession. This concern is limited, though, since the concession note obliges the concession-holder to act with proper diligence in operating the Concession. This obligation is also indicated by the general law applying to concession-holders. The State's right, by virtue of the special state share, to receive information from the concession-holder, among other things in order to oversee the efficient development and utilization of the minerals and natural resources, allows the State additional oversight over fulfilment of this obligation. In addition, insofar as the current concession-holder is interested in continuing its operations even after expiration of the Concession (under a new license), it also has little interest in undermining the assets.

Details respecting these issues are provided in Appendixes A-E of this document:

Appendix A presents background on the resource extraction activities in the Dead Sea, including: the historical background of the Concession, the resources extracted from the Dead Sea, and the environmental issues relating to the Concession and the region;

Appendix B presents an international review of models for the allocation of natural resources extraction rights;

Appendix C presents an analysis of the potential candidates for future extraction activity (other than ICL);

Appendix D presents a theoretical analysis of alternatives for implementation of a bidding process for granting the future extraction license;

Appendix E presents an analysis of the implications of uncertainty respecting the future of the Concession during the interim period until 2030.

Based on the discussion of the above issues, the Team has formulated its recommendations, as specified below:

**(B) The Team's recommendations: guidelines**

8. The extraction of resources from the Dead Sea carries great and substantial benefits to the Israeli economy as a whole and to southern Israel in particular. In light of this, and subject to the government's comprehensive policy respecting the Dead Sea, **the Team recommends continuing extraction of resources from the Dead Sea**. This, while taking measures designed to restrict the scope of the plants' negative environmental impact, as specified later on.

9. **The Team recommends continuing with the model wherein the extraction of resources from the Dead Sea is carried out by a private entity.** This model places the extraction of resources in the hands of an entity exposed to incentives for managerial and business efficacy, while the taxation array – including royalties and taxation, including excess profits tax – yields the government revenues that grant the public an appropriate share in the profits generated from the natural resources. Moreover, the private sector has an inherent advantage in managing complex international businesses, as compared to the government. In spite of the aforesaid, and in light of the Team’s ultimate goal, it is necessary to prepare for the possibility that under certain circumstances the government would take upon itself the resource extraction activity, as will elaborated below.
10. **The Team recommends the formulation of new conditions for the future activity of resource extraction from the Dead Sea** (hereinafter: the “Future Extraction License”, “Future Operation License” or “Future Extraction Activity”). A sub-team established to formulate such new conditions shall examine the appropriate legal form for the Future Extraction Activity (i.e., through a concession, operation license, designated legislation or another form), subject to general laws. Also examined at this stage will be all legislative amendments, to the extent required, in order to regulate the Future Extraction Activity. The Future Extraction License would define, in a clear and detailed manner, the rights and obligations of the holder of extraction right, which will be an exclusive right to extract such resources, in accordance with the State’s position in connection with the natural resources. This, while relying in the knowledge and understanding accumulated over the years of Concession, and in light of the legal, economic, social and environmental developments that occurred since the drafting of the current Concession. among other things, it is recommended to limit the area in which the holder of the Future Extraction License will operate only to the areas actually necessary for operation of the plants, to limit the total amount of seawater pumped from the northern basin, to incentivize efficient use of the pumped water, to impose liability for the environmental damages caused by resource extraction activities on the holder of the Future Extraction License, to arrange the terms of sale of raw materials produced under the extraction license to Israeli consumers, etc., all in accordance with general law, including legislative amendments to the extent required. Details recommendations respecting the guidelines regarding the terms of the Future Extraction License are provided in Section (D) below.
11. **The Team recommends that the Future Extraction License is granted through a bidding process.** A bid is the optimal way to maximize the value of the natural resources for the State, as well as the proper way from the public and administrative perspective of managing the State’s assets in accordance with the principle of equality. The bid will be structured in such a manner so as to allow maximum competition and minimize information disparities. The bid will be subjected to the principles of tender laws, to administrative laws, to the Law for Promotion of Competition and Reduction of Concentration, 5774-2013 in terms of competition and in terms of overall-economic concentration (which applies also to the procedure for allocation of the future concession, in whichever way it is allocated), as well as to the other relevant laws.
12. In order to ensure that, upon conclusion of the bidding process, the Future Extraction License is given for a consideration that reflects its value, the Team recommends that before launching the bid **the State determines a minimum price, which reflects a proper estimation of the value of the resources.** This, among other things, also in reference to the value of the assets which the government must pay the current concession-holder under Section 24 of the concession note.

13. The Team recommends that **in case no company offers a price that exceeds the minimum price determined by the State as the proper value of a license to extract resources from the Dead Sea, extraction activity will be passed on to operation by the State**, by itself or through a statutory corporation or government-owned company established for such purpose. In order for this possibility to be viable upon conclusion of the current Concession and clear to all potential bidders in the bidding process, the basic structure of such governmental entity must be established (appointment of key officers, definition of the corporation's structure, formulation of a work plan, etc.) sufficient time in advance, so that at the time of the bidding process such entity will be prepared to take upon itself that the extraction activity in case the minimum price is not received from any of the bidders. It should be emphasized that, without the mechanism for determining a minimum price and establishing a proper alternative, there is cause for concern that the State would not be able to obtain proper payment for the allocation of the extraction right. Hence, although it is the Team's recommendation that the extraction of resources from the Dead Sea is conducted by a private entity, preparations must be made for the possibility of extraction of resources by a governmental entity. This, in order to ensure that, in any event, the rights to utilize a natural resource belonging to the public are not transferred without receiving a consideration reflecting its value.
14. The Team recommends taking action in order **to reduce, and to the extent possible eliminate altogether, the current uncertainty respecting the future of the Dead Sea concession**. the concession-holder is making investments amounting to hundreds of millions of shekels every year, many of these being long-term investments; the uncertainty surrounding the end of the concession period gives rise to concerns respecting the economic incentive of the concession-holder to make investments and forward-looking activities in general (e.g., preventive maintenance).
15. In light of the aforesaid, the Team recommends that the State **takes action to reduce the uncertainty and to limit the concession-holder's ability to act not in the interest of the Concession**. For this purpose, it is recommended to establish a sub-team whose purpose would be to ensure that the concession-holder fulfills its obligation to act with proper diligence – an obligation provided in the concession note and stemming from the general law applying to concession-holders.<sup>6</sup> Among other things, the State must also exercise, for such purpose, its rights by virtue of the special state share, which allow it to receive information from the concession-holder, for purposes of overseeing the efficient development and utilization of the minerals and natural resources.<sup>7</sup> Action must also be taken to ensure the smooth transfer of the assets unto the new concession-holder (insofar it differs from the current concession-holder).

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<sup>6</sup> See AdminApp 4011/05 **Dagesh Foreign Trade (Shipping) Ltd. v. Ports Authority (Israel Ports Development and Assets Ltd.)**, para. 46 of the judgment of Hon. Justice Procaccia (published on Nevo, February 11, 2008): "...the holder of a concession is obligated to treat the operating right entrusted to him in faith toward the public; a corresponding duty applies to the public authority, to ensure that such obligation is fulfilled by the concession-holder." See also: D. Barak-Erez, "Public Justice and Private Justice – Boundaries and Reciprocal Effects" **Law and Government** 5, 95, 115 (2000).

<sup>7</sup> Article 8(b)(4) and Article 8(b)(8)(b) of ICL's Articles of Association.

16. In addition, an attempt must be made to **eliminate the uncertainty** altogether, by **bringing forward the conclusion of the concession period and launch of a bidding process for allocation of the Future Extraction License, based on an agreement with the current concession-holder**. As part of implementing such a step compensation to ICL must be determined due to the remaining Concession years until 2030. It appears that the format of the bidding process should be similar to the format described above, including the determination of a minimum price and a mechanism that ensures such minimum price, e.g. through establishment of a governmental entity that shall take upon itself the extraction activity in case such price is not achieved through the bidding process. The advantages of this alternative for the State are: elimination of the uncertainty regarding the future of resource extraction already in the coming years, and bringing forward the implementation of improved extraction conditions; this, while the allocation of future extraction rights is done by way of a bidding process, and giving various players the opportunity to take part in such process. For ICL, there is a clear advantage in the elimination of the uncertainty, which hinders business activity, discourages potential investors and restricts commercial development.
17. As aforesaid, the State should persistently seek to bring forward the bidding process. To the extent that this is not possible, **the State must revisit the alternatives available to it**. At the same time, the State must prepare to closely supervise ICL's activity in order to ensure that it is operating adequately to preserve and develop the natural resources. In case such supervisory measures are insufficient, further consideration would be required and other possibilities should be examined in order to ensure the public interest and safeguard the public's natural resources.
18. In any event, it must be made certain that **preparations are made to implement a bidding process for the allocation of the Future Extraction License toward the end of the current concession period** (in 2030 or earlier), sufficient time in advance. This, among other things, in light of the lessons drawn in recent years in other cases wherein concession periods have come to an end. Prior to such bidding process a minimum price should be determined as aforesaid, and an effective mechanism should be put in place to ensure the achievement of such price at the least, such as transferring extraction activities to the management of the State.

(C) **The Team's recommendations: required government actions**

In order to implement the principles and advance the preferred alternative as described above, the government must address, **as soon as possible**, several issues. These issues should be addressed by **several sub-teams led by the Accountant General in the Ministry of Finance**, in collaboration with the Budget Division and Legal Division in the Ministry of Finance, the Ministry of Environmental Protection, the Ministry of Justice, the Ministry of Economy, the Ministry of Energy and the Israel Tax Authority, in accordance with the issue and as necessary:

19. **Drafting the Future Extraction License** – based on the guidelines specified herein, and in consideration of the appropriate legal means for such purpose.
20. **Planning the bidding process** – in order to allocate the concession through a bid, it is necessary to formulate the most effective competitive process, which acts to minimize ICL's information advantage. Within this framework, a detailed legal opinion must be prepared in support of the bidding process, according to the principles of tender laws, as well as other relevant laws, including international aspects.

21. **Determining the minimum price** – in order to ensure receiving a proper price for the allocation of natural resource extraction rights, a minimum price must be set to ensure that such rights are not given to a private company for a price that does not reflect the value of the resources. This, among other things, while referring to the value of the assets which the government must pay the current concession-holder as provided in Section 24 of the concession note.
22. **Preparation for operation of extraction activities by the State, in order to ensure an alternative in case the minimum price is not offered** – the Team recommends that in case no bidder offers the minimum price, extraction activity will be transferred to operation by State, through a legal entity established for such purpose. The Team recommends to establish a skeleton of such governmental entity (including appointment of key officers, definition of the corporation's structure, formulation of a work plan, etc.) sufficient time in advance, **so that at the time of the bidding process such entity will be prepared to take upon itself that the extraction activity**, and constitute a proper alternative in case the minimum price is not received from any other party. It should be emphasized that, although it is the Team's recommendation that the extraction of resources is conducted by a private entity, preparations must be made also for the possibility of a governmental entity carrying out such activity, in order to ensure that the rights to the natural resources are not transferred to a private company without receiving a consideration reflecting their value.
23. **Bringing forward the bidding process and eliminating the uncertainty regarding the future of resource extraction from the Dead Sea** – the Team recommends considering the alternatives for arrangement of the future of resource extraction already in the next few years. The preferred alternative in this context is, as aforesaid, **bringing forward the conclusion of the concession period and launching a bidding process for allocation of future extraction rights, based on an agreement with ICL**. This would require resolving complex issues vis-à-vis ICL, including the value of the tangible assets referred to in Section 24 of the current concession note. In order to examine and resolve these matters the Team recommends establishing a sub-team to communicate with ICL and examine the feasibility of this alternative, and formulate all details of the mechanism for implementation thereof.
24. **Establishment of the mechanism for approval of investments in the final ten years of the concession period and oversight of ICL's activity, in order to ensure that it is operating adequately to preserve and develop the natural resources**. In case it turns out that bringing forward the bidding process is not possible. The alternatives must be revisited. In such a case, a mechanism must be established for the years remaining until 2030, in light of ICL's obligation to obtain government approvals for new investments under Section 24 of the concession note. This mechanism, alongside other mechanisms formulated by the sub-team, would allow the State to ascertain that ICL is fulfilling its obligations and ensuring proper maintenance and efficient utilization of the resources until such the expiration of the Concession. Approval for investment is actually required only as of 2020, but preparations must commence sufficient time in advance including the forming of clear procedures and criteria for approval of investments, and addressing the issue of maintenance.

(D) **The Team's recommendations: key issues in the Future Resource Extraction License**

The Team recommends that, as part of the regulation of rights for Future Resource Extraction, the following key issues are resolved. It would be emphasized that **the following is not an exhaustive list of the issues that must be addressed within the drafting of the Future Operation License, and that these recommendations do not restrict those engaging in formulating the conditions of Future Extraction Activities, who would be authorized to discuss all the matters arising.**

As aforesaid, as part of the formulation of such new conditions, examination will be made of the most suitable legal form for the regulation of the Future Extraction Activity under the unique circumstances of the natural resources in the Dead Sea. Such regulations may be through a concession, an operation or extraction license, designated legislation or another form. Such Future Activity will be performed subject to general laws, alongside examination of legislative amendments, to the extent required, in accordance with the conditions provided in the Extraction License and the rights allocated.

I. Allocation of the rights to extract resources as a whole. In light of the advantages stemming from the existence of synergies in the extraction of the various resources, and the ability to perform optimization between various stages of the production process (management of the ponds and production plants), the Team's recommendation is to grant a single license for the extraction of all resources from the Dead Sea (excluding a defined list of resources excluded from it, as described below), while such license would grant the license-holder an exclusive right to extract such resources. Breaking down the rights into separate segments is expected to decrease the total value of the resource, and thus should be avoided.

II. Area of operations. When granting the new extraction rights, it is necessary to examine the area of operations and limit is so as to include only areas which are in fact required for the plants' operation, while setting limits on the use of land; in particular, it is necessary to exclude from the Future Extraction License any rights relating to areas included in the current concession and used for other purposes, such as settlements, business activity unrelated to the plants (e.g. tourist activities or activities for the extraction of materials used in the cosmetics industry), as well as areas with unique environmental value. At the same time, the recommends leaving the responsibility for drainage and the prevention of flood damages in the hands of the future extraction rights-holder, in light of the great value of the assets vis-à-vis the palpable danger of floods in the region; transferring responsibility in this matter to an external entity, which is incapable of performing the cost-effectiveness analyses in terms of investing in flood prevention measures as compared to the potential damage to the plants, may undermine the value of the assets. Therefore, the Extraction License must also regulate the areas in which facilities and infrastructures designed to drain and prevent flood damages are located (as well as areas which are expected to be required for the construction of such facilities in the future). It is necessary to ascertain that all drainage activities are performed in full coordination with all relevant entities.

It would be clarified that areas used (or which may be used in the future) for the extraction of streambed materials or groundwater drilling do not constitute, in and of themselves, areas required for the purpose of resource extraction activity. It is therefore recommended not to include any rights to such areas in the Future Extraction License. To the extent that raw materials and the extraction of groundwater are required, these will be regulated by general laws.

III. Mount Sodom. Mount Sodom, which is included in the area of the current Concession, contains mineral deposits that may potentially be mined for potash. To date, this possibility has not been utilized, in light of the lack of economic feasibility. In light of the unique environmental value of this locale, it is suggested not to include the rights to extract minerals from Mount Sodom in the Future Extraction License. To the extent that economic feasibility exists in the future with respect to resource extraction at the site, the promotion of resource extraction there can be considered in the future in accordance with general laws, including planning and building laws.

IV. Restriction of the total quantity of water pumped (net) from the northern basin. The pumping of water from the northern basin is one of the causes, though currently not the main cause, for the decreasing water levels in the Dead Sea. Hence, it is suggested that as part of the regulation of conditions for Future Extraction Activity, and in accordance with water laws, a maximum is set for the net annual pumped quantity. The purpose of such maximum is to reflect a balance between the great economic value found in the continued operation of the plants, and the desire to limit the scope of their adverse environmental impact. On April 14, 2018 a government resolution was passed for addressing the Dead Sea region, wherein it was decided, among other things, to establish an inter-ministry team to formulate the government's long-term policy respecting the future of the region, including in connection with the water level in the northern basin.<sup>8</sup> Thus, setting a maximum for the total quantity pumped as part of the Future Extraction License must be in coordination with the government's policy respecting the Dead Sea region in general.<sup>9</sup>

It is recommended to determine this maximum in reference to the pumping average over several years (3-5), in order to allow a certain measure of operational flexibility on the single year level (that is, the ability to pump beyond the maximum in a given year while "compensating" by pumping less than the maximum in the following years).

V. Mechanism incentivizing efficient use of water. In addition to setting a maximum limit on the total quantity pumped annual, the Team recommends establishing an economic incentive encouraging the future extractor for efficient use of the pumped water, thus reflecting the effects of pumping of water from the northern basin and its contribution to decreasing its water level and the harm to the environment. This, in accordance with water laws and in coordination with the governmental Water and Sewage Authority (the "Water Authority"). For this purpose, it must be ascertained that the Future Extraction License includes regulations of the extractor's duty to provide detailed reports regarding the water quantities pumped from and discharged back the Dead Sea. It would be emphasized that the purpose of such incentive is not to increase the State's revenues.

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<sup>8</sup> Government Resolution no. 3742, "Aid to Settlements and Municipalities in the Dead Sea Region in Coping with the Damages of Sinkholes and Amendment of Government Resolution", Section 6.

<sup>9</sup> As a rule, it is proposed that the maximal level is based on the average scope of pumping in recent years, since the completion of construction of the buffer in the northern bank of pond no. 5 and until the time of formulation of this document, in a manner that would allow continuation of extraction at the current levels.

- VI. Implementation of the harvest project. It is recommended that the Future Extraction License clearly and explicitly defines the issue of the extractor's responsibility for the implementation of the harvest project throughout the entire period of its operation. This issue has heretofore been regulated under Government Resolution no. 4060, under the agreement entered by the government and DSW and also in national infrastructure plan NIP 35A. It is necessary to ensure that the salt harvest issue finds expression in the Future Extraction License – while detailing the undertakings and responsibility of the license-holder, as well as the reliefs and sanctions available to the State in case the extractor violates its undertakings. It would be emphasized that this section refers to all stages of the project – from the harvesting of salt from the evaporation ponds and until the sedimentation of the salt in the northern basin of the Dead Sea.
- VII. Setting a minimum level for the height and depth of the ponds. In light of the fact that pond no. 5 is the foundation of the hotel compound in the southern basin of the Dead Sea – it is suggested to examine, subject to planning and building laws and to planning proceedings, the inclusion of a minimum level for the height and depth of the ponds within the Future Extraction License, in order to safeguard the touristic activities at the compound. It is recommended to determine that deviation from the set minimum constitutes a substantial breach of the terms of the Future Extraction License.
- VIII. Regulation of the plants' use of groundwater. The Dead Sea plants use a large quantity of groundwater pumped within the area of the current Concession. As part of the allocation of future extraction rights this issue must be clarified in a clear manner including all aspects thereof, in accordance with the Water Law and general laws. First, as aforesaid, areas used for groundwater drilling will not be considered, in and of themselves, areas required for the purpose of resource extraction, and shall therefore not be included in the framework of the Future Extraction License. Second, such drilling must be subjected to the water laws applicable throughout the country in connection with water drillings serving a water source for industrial activity, including the imposition of a water extraction fee. Third, as the Future Extraction License is expected, as aforesaid, not to include water drilling areas, and also in consideration of the fact that water in the existing drillings may be exhausted in the future, thus requiring water supply from other sources, it is necessary to consider how to prepare for such an eventuality.
- IX. Application of planning laws and environmental protection laws. For the removal of all doubt it would be emphasized the activity for the extraction of resources from the Dead Sea is similar to all other industrial activities, and the Future Extraction License must ensure that such activity is subjected to all laws, including the planning and building laws and environmental protection laws.

X. Prevention of future environmental hazards and examining the possibility of addressing existing hazards. The area of the Concession currently contains various waste and pollution hazards. A prominent example is the “salt mountain” – a salt waste pile currently covering an area of 400,000 square meters and rising to the height of 24 meters. As part of the allocation of future extraction rights it is proposed to clearly define the responsibility of the new extraction rights-holder with respect to all environmental hazards caused within the scope of its responsibility, including the responsibility to remove, to rectify and to restore hazards, without derogating from the provisions of any law. It is recommended to consider, as part of the preparation of the Future Extraction License, the reliefs and sanctions available to the State in case of violation of these undertakings, in addition to the powers given to the State by virtue of environmental and other laws.

With respect to the existing environmental hazards, the Ministry of Environmental Protection should lead a comprehensive examination, from an inclusive governmental perspective, toward the end of the concession period, of regulatory obligations to restore unaddressed past hazards by the current concession-holder. This, in order to prevent a situation wherein the Concession is transferred to an alternative concession-holder or to the State with hazards, which law requires be addressed by the current concession-holder, in a manner that may undermine the value of the future resource.

In case it is discovered the Concession area contains hazards which, according to such examination, the current concession-holder is not liable to address, it is suggested to consider whether the addressing thereof can be advanced within the framework of allocation of the future extraction rights, while it stands to reason that any cost imposed on the new concession-holder in this context would be reduced from the value of the extraction rights as expressed in the bid made in the bidding process.

XI. Examination of rights to extract materials for the cosmetics industry. The current Concession refers to all resources in the area defined in the concession note, excluding a list of resources explicitly excluded therefrom (such as oil and gold). When allocating the Future Extraction License, it is necessary to consider whether there are other resources that should be extracted from it – particularly, materials extracted for purposes of the cosmetics industry. First, it should be considered whether there is cause to exclude the rights in the materials used in the cosmetics industry from the extraction rights, as part of the reduction of the extraction area so as to include only the areas actually used by the plants, as discussed above. In case it turns out that there is no such possibility (i.e., that the areas used for the cosmetics industry are the same ones used by Dead Sea plants), it would be necessary to consider excluding the materials used in this industry from the extraction rights, as they do not pertain to the core of the of the resource extraction activity – and granting the rights in such materials to the holder of future extraction rights could undermine both the possibility of such industry’s development and the ability to properly regulate it. It would be clarified that in case such minerals are excluded from the purview of the Extraction License as aforesaid, the extraction thereof would be regulated according to the Planning and Building Law and the Mines Ordinance. In addition, procedures must be made clear with respect to coordination of activities within the extraction area between the holder of extraction rights and other users.

XII. Duration of the Future Extraction License. When drafting the Future Extraction License it would be necessary to define its duration; the Team's recommendation is that such License is granted for a period of 30-40 years, while the exact duration is to be determined by the sub-team. The resource extraction activity is a high-investment activity, with some of these investments being long-term investments spanning numerous decades; for example, certain assets, and particularly dikes and ponds, are depreciated according to a lifespan of 40 years.<sup>10</sup> Moreover, these investments are required continuously throughout the entire period of the License – that is, they are not concentrated solely in the beginning thereof. As these are costly investments, they also require a lengthy return period. Therefore, the duration of the Future License should be long enough so as to allow the entrepreneur to make such investments with the certainty of being able to reap their fruits. Furthermore, the years preceding the expiration of the extraction rights are characterized by structural difficulties relating to the incentives to take forward-looking actions, in manner that also undermines the value of the resources, and it is therefore advisable to minimize the frequency of such periods. In light of all of the foregoing, it is proposed to determine, as aforesaid, the allocation of extraction rights for a period of approximately 30-40 years, which would afford the right-holder certainty for a sufficient period so as to maximize the value of the Concession.

Notwithstanding, substantial terms – especially in environmental aspects – must be explicitly defined, the violation thereof on the part of the Future Extraction License holder or a drastic change therein could entail clear reliefs, and in extreme cases, revocation of the License and return thereof unto the State.

XIII. Setting a minimum level of potash production. The purpose of this condition is twofold – first to ensure that in case of a substantial and continuous managerial-operational failure on the part of the new extraction right holder, expressed in a substantial decline in production capacity, the State will have the means to demand the return such rights to its own hands. Second, to limit the injury caused to the State's revenues by such conduct of a license-holder that constitutes a decrease in production due to cartelistic considerations of supporting higher global potash prices. In general, the position of the Team is that the likelihood of such considerations having a material effect is limited, in light of the low production costs of potash in the Dead Sea; thus, the Team's position is that there is no reason to disqualify certain companies from taking part in the bidding process on the background of such concerns. However, for the sake of caution, in order to ensure that even if such a situation arises, the injury to State revenues remains limited – it is proposed, as aforesaid, to set a minimum for the production of potash. It is suggested to set such minimum at a level lower than the current rate of production, in order to allow for operational flexibility, and for the ability to adjust the scope of extraction even in case of a decline in potash prices. In extreme cases, further decrease of such minimal level should also be permitted, with the approval of the Minister of finance.

XIV. Sale of raw materials to domestic consumers. It is recommended, as part of the future allocation of rights, to regulate the terms of sale of the extracted raw materials to consumers in Israel. This, in order to serve the Israeli economy and also to establish a framework that would allow certainty respecting the continued operation of ICL's downstream plants also in the event that future extraction rights are awarded to another company.

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<sup>10</sup> See ICL's financial statement for 2017, Note 3\D(3).

- XV. Modification of the royalty structure. According to the current Concession, the Dead Sea plants pay royalties both for the raw materials extracted from the Dead Sea and for downstream products produced based on such raw materials. The experience accumulated in the course of the current concession period indicates that the collection of royalties and manner of calculation thereof with respect to downstream products is complex, and tends to become a point of friction between the State and the concession-holder – an issue illustrated by the arbitration process in this matter which has been going on for several years. Thus, it is proposed to consider the possibility of applying a simpler mechanism, while preserving the same overall level of State revenues (the “Government Take”). The royalties should be imposed, as far as possible, without any deductible reductions other than the international shipping component.
- XVI. Regulation of the conclusion of the license period. Generally speaking, it is not necessary to provide any compensation of payment to a concession-holder upon conclusion of the license period; however, as it is in the State’s interest to reduce as much as possible the adverse implications of the uncertainty toward the end of the concession period, it is advisable to consider a compensation mechanism that may aid in achieving such goal. It is inherently difficult to determine in advance a mechanism whose actual implementation would only be carried out several decades into the future, and such a determination might also cause unforeseen difficulties for the State. It is therefore suggested to allow the State flexibility to determine the details of such future mechanism closer to the end of such period – for instance, 10-15 years prior to its conclusion.
- XVII. Duty to report economic and engineering data and extraordinary events to the government. It is recommended to include in the future extraction conditions reporting duties that would require the resource extractor to report to the government about economic, financial and engineering data pertaining to the Extraction Activity and related activity, inclusive of fixed periodic reports and reports provided in response to specific requests made by the government. Such data would allow the government to closely supervise the Extraction Activity, and facilitate the preparation of the bidding process respecting future periods. Particular emphasis is given to the duty to report the scope of water pumping from the northern basin and the scope of water discharged back into the Sea upon completion of the extraction process. Another physical datum that should be considered is a constant and routine monitoring regarding the physical condition of the dikes delineating the evaporation ponds (and the level of leaks occurring through them).
- XVIII. Government actions required respecting the Dead Sea Concession and the international obligations of the State of Israel. The activity for extraction of resources from the Dead Sea is an economic activity having diverse international aspects. On this background, as part of the planning and implementation of all governmental actions in this matter, special attention must be given to the relevant obligations of the State of Israel on the international level, including its obligations in the field of international economic law.

# APPENDIXES

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## Appendix A - Background on Dead Sea Resource Extraction Activity

This Appendix will provide background on the activity of resource extraction from the Dead Sea:

- Section (1) presents the historical background of the Dead Sea concession, including reference to developments regarding ownership and taxation.
- Section (2) provides information regarding the resources extracted from the Dead Sea and the international markets for these resources.
- Section (3) notes additional activities taking place in the concession area other than resource extraction activities.
- Section (4) presents data and a discussion regarding the decreasing water level in the Dead Sea as well as other environmental issues pertaining to the concession area.

### 1. The Dead Sea Concession

#### 1.1 Historical background

The activity for extraction of resources from the Dead Sea has been carried out since the 1930s. Between 1931 and 1947 the activity was carried out by the Palestine Potash Company, a private company owned by entrepreneur Moshe Novomeysky, which was granted a concession for such purpose from British Mandate authorities. In 1952, following the War of Independence that severely damaged the plants and left some of the plants on the Jordanian side of the border, and due to the company's difficulties in raising capital for restoration purposes, the company was nationalized and its assets were transferred to the Dead Sea Works company (DSW) – a government-owned company established for this purpose.<sup>1</sup>

In 1961, on the background of negotiations held between the Israeli government to secure loans from the World Bank and other parties in order to expand the plants' production capacity and construct the evaporation ponds, DSW was granted a concession to extract resources from the Dead Sea until 1999. The concession note was even adopted through legislation and anchored in the Dead Sea Concession Law, 5721-1961. The concession granted DSW the exclusive right to extract resources from the concession area,<sup>2</sup> as well as the right to take all necessary actions for such purpose. As provided in Section (2):

“2. The government hereby grants the concession-holder the following concession; that is:

- (a) The exclusive right to obtain, by way of evaporation (solar or artificial), chilling, mining, quarrying, or any other way, the minerals, resources and chemicals, whether in the form of solutions or solids, in the Dead Sea and thereunder, and to prepare them for marketing, to sell them and to dispose of them;
- (b) The exclusive right – subject to all rights existing at the time of this note, and subject to the provisions of Section 3(3) below – to make, expand, alter, maintain and

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<sup>1</sup> Ran Ner-Or, “Moshe Novomeysky and the Palestine Potash Company”, **Salt of the Earth 4** (5770), 1-23.

<sup>2</sup> Section 3 of the concession note excludes from it the following resources – gold, silver and other precious metals, gemstones, copper and iron ores, antiques and oil.

demolish, in the Dead Sea and thereunder, all works, including – but without derogating from the generality of the aforesaid – dikes, evaporation ponds, culverts, water gates, pumping stations, canals, pipes, powerlines and power cables, roads, flood-protection installations, wells and drillings and other installations, alongside the exclusive right of access to such works and usage thereof”

In return for these rights, the concession required DSW to pay royalties for the resources extracted and for downstream products based on the extracted resources (Section 15 of the concession note) and other obligations, such as the obligation to act with due diligence (Section 12 of the concession note), the obligation not to engage in agreements restricting output (Section 14 of the concession note), etc.

In 1968 the Israeli government founded the Israel Chemicals company (ICL), with the purpose of unifying all government-owned chemical industries in Israel, and over the next few years DSW became a subsidiary of ICL (together with the latter’s own subsidiaries for the extraction of bromine and production of bromine-based downstream products); alongside DSW, integrated within ICL were also companies engaged in phosphate extraction and fertilizer production – area of activity in which ICL engages to this day, currently under its subsidiary Rotem Amfert Negev.

In 1986, out of the desire to enable ICL, at the time still a government-owned company, to raise capital on international markets, the concession was extended by law until 2030.

During the years 1992-1998 ICL underwent privatization. First 19% of its shares were sold to the general public, and later on the control core was sold to the Israel Corporation, at the time owned by the Eisenberg family; in the course of this process 9% of ICL’s shares were also sold to Canadian company Potash Corporation of Saskatchewan (“Potash”). In 1999 the Eisenberg family sold control over Israel Corporation to the Ofer family, and since then the Ofer family is the controlling shareholder of ICL, through Israel Corporation. The Israel Corporation currently holds approx. 46% of ICL’s shares, while the remaining 54% are held by the general public (following the sale of Potash’s shares in the company in January 2018); it would be noted that the Ofer family’s holdings in Israel Corporation, directly or indirectly, amount to just over 50%, while the remaining shares are held by the general public and the institutional bodies.

Within the privatization process, the State of Israel reserved certain right sin ICL through the Special State Share (the “Gold Share”). The rights conferred upon the State by the Share are defined in ICL’s articles of association, and the company cannot change the relevant articles in its articles of association without the consent of the State. These rights include the State’s right to preserve ICL’s nature as an Israeli company, to supervise its control over natural resources in order to ensure the efficient utilization thereof, to prevent hostile parties or parties having interests contrary to those of the company from taking it over; and grant the State a veto right regarding the sale or encumbrance of material assets, structural changes and any purchase of shares at rates exceeding 14% or at a rate bringing a purchaser to a holdings rate exceeding 25%.

It would be noted that in 2013 Potash expressed an interest in acquiring control of ICL; the transaction fell through, among other things, on the background of the opposition of the then Accountant General at the Ministry of Finance to such step, while considering the possibility of exercising the rights granted to the State by virtue of the Gold Share, which was eventually not necessary as Potash withdrew its interest.<sup>3</sup>

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<sup>3</sup> See elaboration in this matter within the opinion if the Accountant General in the Ministry of Finance regarding the possibility of a merger transaction between Israel Chemicals and Potash, dated April 28, 2013.

## 1.2 Royalties and taxation

As aforesaid, the concession obliges the concession-holder to pay royalties for the extracted resources, and for downstream products based on the extracted resources.

The rate of royalties determined for this purpose in the concession note (both respecting raw materials and downstream materials) is 5% of the value of extracted resources, after deduction of certain expenses; it was further determined that, to the extent that the concession-holder extracts over 1 million tonnes of potash per year, the government may request raising the royalty rate (up to 10%). Indeed, within the framework of the Dead Sea Salt Harvest agreement (see discussion below), approved in Government Resolution 4060 dated January 1, 2012, it was determined that with respect to extracted potash beyond the quantity of 1.5 million tonnes per year, ICL will pay royalties at the rate of 10%.

However, the said royalty rate did not remain in force for long, and was modified in legislation passed by the Knesset following the recommendation of the Sheshinski 2 Committee in 2014. As aforementioned, the Sheshinski 2 Committee examined the entirety of issues pertaining to the “Government Take” in profits deriving from the extraction of natural resources, and recommended a more balanced division of the risks and chances between the concession-holder and the government – recommendations that were adopted by the legislator. The royalty rate now stands, again, at 5% (regardless of the scope of extraction), while since 2016 the Law for Taxation of Profits from Natural Resources, 5771-2011 (the “Natural Resource Taxation Law”) came into force. The Law imposes a toll on excess profits from the extraction and sale of natural resources (with respect to potash – effective as of 2017). The tax base on which the toll is imposed is referred to as excess profits, calculated based on the operating profit (which is subject to certain adjustments, including the reduction of an amount equal to 5% of the average working capital), subject to deduction of an amount reflecting a yield at the rate of 14% over the depreciated cost of the fixed assets. This yield rate reflects the normative profit, for which excess profits toll would not be imposed. In this fashion, the natural resource toll is imposed only on the profit that exceeds the normative yield received for the investment in the fixed assets used to extract and sale the natural resource. The excess profits toll is progressive. The first bracket is at the rate of 25% and applies to the excess profits up to an amount equal to 6% of the depreciated cost of the fixed assets (i.e., up to a profitability level of 20% in relation to the depreciated cost of the fixed assets). The second toll bracket is at the rate of 42% and applies to the remainder of excess profits, i.e., to profit exceeding 20% of the depreciated cost of the fixed assets. The toll is imposed solely on excess profits from the extraction and sale of the natural resource (i.e., until the sale of a mineral which constitutes the “first tradable product” according to a list provided in the Addendum to the Natural Resource Taxation Law), and is not imposed on the downstream products produced from such natural resource, as the Committee’s recommendations did not address the issue of royalties on downstream products, while these remained as they were in accordance with the concession.

It would be noted that the recommendations of the Sheshinski 2 Committee were based in the application of the full rate of corporate tax on the profits deriving from the extraction and sale of natural resources. Thus, the tax benefits in accordance with the Encouragement of Capital Investments (the “Encouragement Law”) were not, in fact, taken into account. In 2015 a clarifying amendment was made to the Encouragement Law, which excluded from the application thereof any mine or other plant whose activity, in whole or in part, is the

extraction and sale of a natural resource. Thus, compatibility now exists between the activity on which the excess profits toll is imposed under the Natural Resource Taxation Law and the activity excluded from benefits under the Encouragement Law.

Also worth noting is the arbitration proceeding conducted between the State and ICL in the matter of royalty payment. In 2011 the State of Israel filed a claim against ICL, including a demand for payment at the amount of approx. \$291 million, mainly for under-calculation of the royalties required under the concession note and underpayment respecting royalties for the downstream products sold by ICL that re based on the natural resources and in accordance with the concession. The claim was filed within the framework of an arbitration proceeding as provided in Section 26 of the concession note. The partial arbitration award given in 2014 sustained the State's claims regarding ICL's liability to pay royalties for downstream products. Following the issuance of the partial arbitration award, the second stage of the arbitration proceeding, the issuance of accounts, has been conducted in recent years, including issues pertaining to the manner of calculation of the royalties. Thus far, the government has received, within the framework of the arbitration proceeding, approx. ILS 900 million, including interest and linkage.

## **2. Extraction of resources from the Dead Sea**

ICL extracts three main resources from the Dead Sea: potash, bromine and magnesium. Over most years, the majority of the company's income from the Dead Sea, and even more so most of its profitability, derive from the field of potash. However, the distribution of income and profitability between the various resources is dependent, of course, on their relative prices, and it is possible that due to the decline in potash prices in recent years. The picture is now different. it would also be noted that ICL also extracts phosphate (and produces products based thereupon), but the extraction pf phosphate is carried out outside the area of the Dead Sea concession and is unrelated thereto, except in the relatively narrow context of downstream products based on the combination of phosphate and potash.

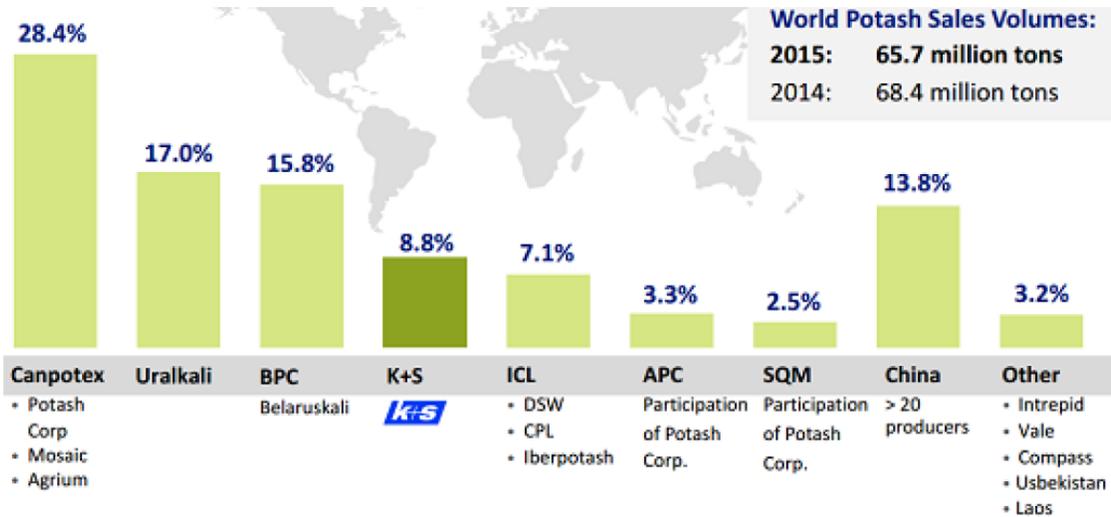
### **2.1 Potash**

Potash is actually a compound of potassium and chlorine (KCl), used mainly to improve the quality of agricultural crops and enhance their resistance to diseases. Potassium, alongside phosphorus and nitrogen, constitutes one of the three key ingredients in agricultural fertilizers. Thus, the vast majority (about 91%) of global potash production is used for the manufacturing of fertilizers, while the remainder is used for industrial purposes (water softening, soap, batteries, pharmaceuticals) or for animal feed and so forth.

The demand for fertilizers is directly affected predominantly by the growth in global population, but also by economic growth that is expressed in a growing demand for meat, which in turn causes a derivative increase in the demand for animal feed (fodder, grain, etc.), and as a result also an increase in the demand for fertilizers used for such crops. In the United States, grain consumption has risen in the last decade also due to an increase in the production of plant-based fuels (mainly based on corn crops), in light of fluctuating oil prices.

The concentration of potash producers is unevenly spread across the world, and is mostly concentrated in North America (mainly in Canada) and Russia, while consumption is spread all across the globe (including major growth centers in south-east Asia and Latin America). This reality creates extensive international trade of potash.

ICL is the fifth largest independent potash producer in the world,<sup>4</sup> as may be seen in the following illustration, referring to 2015. Not all of the quantity attributed to ICL is extracted from the Dead Sea, as ICL also has potash mines in England and Spain; however, most of the company’s potash extraction takes place in the Dead Sea.



Source: IFA

It would be noted that the gap in production between ICL and the Jordanian company (APC), even though both companies extract potash from the Dead Sea, stems from a larger surface area of the evaporation ponds on the Israeli side, as well as from differences in production methods, which cause greater efficiency of ICL.

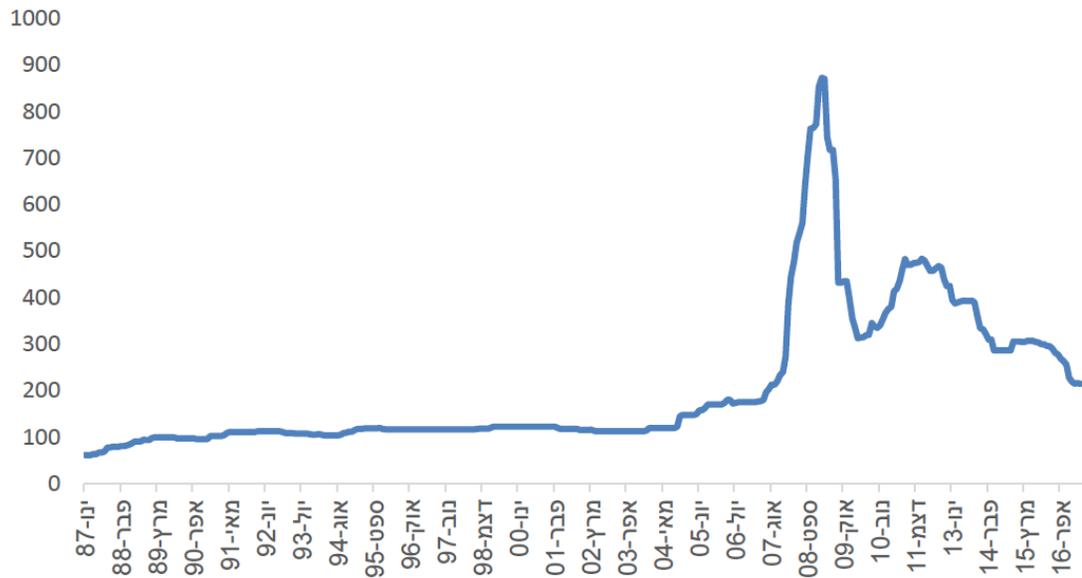
The demand for potash, like the demand for fertilizers in general, is closely connected, as aforesaid, to the prices of agricultural crops and mainly to the primary field crops – corn, wheat, soybeans and sugarcane. However, while the prices of nitrogen and phosphate fertilizers rise and fall according to supply and demand, the scarcity of potash producers and the fact that the industry is clearly led by one firm – Canadian firm Potash (now acting under the name Nutrien) – leads to potash prices being regulated, at times, by the quantity produced and sold, and determined to a great extent according to the interest of potash producers.

Thus, for many years the potash producers kept potash at a relatively low price that ensured them profitability while at the same time preventing the entry of additional producers and uncontrolled expansion of production capacity. However, as of the second half of the previous decade a price-rise began following the collaboration between Russian company Uralkali and Belarussian company Belaruskali, the increase in food prices which led to an increase in the demand for fertilizers, and strategic steps taken by Potash to fortify its position as market leader. A sharp spike in prices occurred in early 2007, and continued until the end of 2008. Potash prices reached unprecedented highs and the potash producers reaped enormous profits over a short period. Even thereafter, despite the effects of the global economic crisis, during which the prices of agricultural products plummeted, the decrease in potash prices was halted through market regulation and a massive reduction of quantities, led by Potash. ICL benefited, during that time, both from the high price and potash and from the fact that its quantity reduction during the crisis was significantly lower than that of the major

<sup>4</sup> Three North American potash producers – Potash, Agrium and Mosaic – jointly market potash under Canpotex (Potash and Agrium have even merged recently, establishing the unified company Nutrien).

companies (20% as compared to over 60%).

### Global Potash Prices 1987-2016, USD per tonne



The price decrease that occurred in the middle of 2012 is explained by several factors, including the decrease in crop prices, the strengthening of the U.S. dollar, and the falling apart of the Russian-Belarussian collaboration in early 2013, which increased competition in the market and weakened the cartelistic control over production quantities. In total, since 2008 the price of potash has lost more than 75% of its USD value.

It would be noted that the global production capacity of potash is much higher than actual production in recent years, as production capacity is estimated at about 80 million tonnes per year, while the quantity produced in 2016 amounted to only 63 million tonnes (following two years of decreases). This state of affairs may also support a relatively low price level, as long as coordination between the major producers is not enhanced.

## 2.2 Bromine

Bromine is used for a wide variety of uses, mainly as a component of flame retardants in various industries – including electronics, oil and gas drilling, etc. The field is highly affected by health-related and environmental regulation – while on the one hand regulation regarding fire prevention creates demand for flame retardant products (including bromine-based products) but on the other hand, issues concerning health risks and environmental risks restrict certain uses of bromine.

ICL is one of the three largest bromine producers in the world, alongside American company Albemarle and German company Lanxess (formerly Chemtura and Great lakes), with the three companies jointly responsible for about 80% of the total global production of bromine according to ICL's reports).<sup>5</sup> Bromine is produced also on the Jordanian side of the Dead

<sup>5</sup> See ICL's financial statement for 2016, at p. 29.

Sea, by JBC (a company under the joint ownership of the Jordanian potash company and Albemarle).

ICL sells bromine in two forms: first - as elemental bromine, and second, constituting the majority of sales, as downstream compounds, produced at the Bromine Compounds plant in Neot Hovav, as well as in ICL-owned plants in the Netherlands and China. According to ICL's estimations, about 70% of elemental bromine in the world is self-consumed by the bromine producers for the production of downstream products,<sup>6</sup> as the transportation of elemental bromine involves relatively high costs.

Like other natural resources, the prices of bromine also rise and fall depending on demand and supply, though the fluctuation level of bromine prices is lower than that characterizing potash prices.

### 2.3 Magnesium

Magnesium is a metal used in a variety of industrial uses. Contrary to potash and bromine, the global magnesium market includes numerous producers, mostly Chinese (which is responsible for about 75% or more of the total global market),<sup>7</sup> while ICL is responsible for only a few percent. ICL's income from magnesium sales constitute a relatively small part of the total sales stemming from resources from the Dead Sea – less than 10%. According to ICL, profitability of the magnesium plant is low to the point of putting in doubt the economic feasibility of its continued operation, while such feasibility is based predominantly on the synergies between the extraction of magnesium and the extraction of the other resources.

## 3. **Additional activities in the concession area**

Tourism – another field of economic activity currently taking place in the concession area is the touristic activity in the southern basin of the Dead Sea. Due to the decreasing water levels in the Dead Sea in the past decades, the southern basin of the lake has effectively dried out. Nowadays, the existence of the southern basin is possible only as long as water are pumped from the northern basin and transferred to the southern basin. Such pumping is carried out by DSW for the purpose of resource extraction, and in case it ceases, the southern basin will dry out completely. At the banks of the southern basin, used by ICL as the large evaporation pond known as pond no. 5, are located the Dead Sea hotels. The hotels include about 4,000 hotel rooms (out of a total of 50,000 hotel rooms in Israel), and the total revenue thereof amounts to nearly ILS 1 billion per year.<sup>8</sup> A major expansion of the hotel compound in the southern basin is planned over the coming years – to the point of doubling the number of hotel rooms.

Extraction of cosmetic materials – an additional economic activity taking place in the concession area is the extraction of materials for the cosmetics industry; however, the scope of this industry is small in relation to the resource extraction activity carried out by Dead Sea plants.

The concession area also includes two settlements – Ein Tamar and Neot HaKikar. About 150

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<sup>6</sup> See ICL's financial statement for 2016, at p. 29.

<sup>7</sup> See ICL's financial statement for 2016, at p. 45.

<sup>8</sup> Central Bureau of Statistics, **Israel Statistical Yearbook 2017**, Chart 23.11.

households currently reside in these settlements, and there are plans to expand these settlements. Agricultural activity is carried out in the vicinity of these settlements – in recent years mostly of date palm crops, alongside vegetable crops.

#### **4. Sections in the concession referring to the conclusion of the concession period**

Several sections explicitly referring to the conclusion of the concession period should also be mentioned:

A. Preemptive right - Section 25 of the Dead Sea concession note provides that:

“25. If, after expiration of the concession, the government seeks to offer a new concession for the extraction of mineral salts, minerals and chemicals from the Dead Sea to any person other than the concession-holder, the government shall first offer the concession-holder a new concession under terms no less favorable than those it wishes to offer such other person.”

B. Payment for the tangible assets - Section 24(a) of the Dead Sea concession note provides that upon conclusion of the concession period the government shall pay the concession-holder for the fixed tangible assets that remain in the concession area:

“24. (a) Upon the expiration or earlier termination of this concession (hereinafter: the “Termination Date”) all fixed tangible assets belonging to the concession-holder shall become vested property of the government, and government shall pay the concession-holder, in consideration of such fixed tangible assets the depreciated replacement value thereof as at the Termination Date. All other property of any nature whatsoever belonging to the concession-holder at the Termination Date shall remain the property of the concession-holder.”

Following the recommendations of the Sheshinski 2 Committee, approved by a government resolution, a team was established in the Ministry of Finance, headed by the Accountant General, whose purpose was to create certainty in this context. The recommendations of this team have yet to be published.

In addition, over the background of Section 24(a), Section 24(b) provides that during the final ten years of the concession period (i.e., as of 2020), government approval will be required for all investments in the concession area which are not fully depreciated by the conclusion of the concession period:

“24. (b) In the course of the ten years prior to the Termination Date, the concession-holder shall not make any new capital investment in the plant, without advance written consent of government, unless such investment can be fully depreciated in accordance with the Income Tax Ordinance in the course of same ten years; however, the consent of government to any fundamental investment which may be necessary for the adequate operation of the plant will not be delayed or suspended unreasonably.”

#### **5. Environmental issues**

The Dead Sea and its surroundings constitute a unique nature and heritage region. It is impossible to consider the continuation of industrial activity therein without examining the entirety of public interests in this natural resource. Proper in this matter are the statements of the Deputy Attorney

General (Economic-Fiscal):<sup>9</sup>

“Treating the discussion of the Dead Sea shallowly, as though it is a discussion of a mere industrial pond, does injustice to this unique site. The industrial activity taking place there is only one component of a historical, touristic, scenic, environmental and historical whole. The Dead Sea is a natural resource whose importance to the State of Israel and the public is of the highest degree. Hence, all industrial activity in this region must be combined with the other public interests in question.”

### 5.1 Decreasing water level

In recent years the Dead Sea’s water level is decreasing at a rate of 1.3 meters a year. The decreasing water level is affecting the Dead Sea’s landscape, access to the Sea and the ecosystem in its vicinity. The decreasing water level has also caused the creation of the sinkholes phenomenon and the undermining of streams phenomenon, which damage infrastructures and restrict settlement, touristic and economic activities in the region. The decreased level is caused due to the Dead Sea’s negative water balance – each year more water is evaporated and pumped out of the Dead Sea than flow into it. As a result, the southern basin has dried out, and in actuality only the northern basin now remains as a ‘natural’ lake. The southern basin remains in existence solely due to the pumping of water from the northern basin the discharge thereof into the southern basin, carried out by DSW as part of the resource extraction process.

The decrease in water levels stems primarily from the dwindling of the Dead Sea’s water sources due to pumping by Israel, Jordan and Syria; thus, while in the past about 1,100-1,300 million cubic meters per year used to flow into the Dead Sea from the Jordan river, nowadays only 70-200 million cubic meters flow into the Sea, at best. Direct discharges of water into the Dead Sea, originating in flood waters and groundwater, have also significantly decreased.

Another cause for the decreasing level is the pumping of water by the plants on both sides of the Sea (the Israeli and the Jordanian). DSW and the Jordanian plant, together, pump about 600 million cubic meters per year, returning into the Sea, upon conclusion of the extraction process, only 250-350 million cubic meters – i.e., pumping out about 250-350 million cubic meters, net (while the share of DSW is slightly higher than that of the Jordanian company, amounting to about 150-200 million cubic meters per year).<sup>10</sup>

Concurrently, the decrease in water levels also caused the surface area of the Dead Sea to shrink (from a surface area of approx. 1,000 square kilometers in the first half of the 20<sup>th</sup> century to approx. 600-650 square kilometers these days), in a manner that also caused a decrease in the Sea’s annual evaporation rate – that is, nowadays a smaller quantity of water is required in order to maintain the (current) water level.

According to estimations, the annual deficit in the Sea’s water balance amounts to approx. 700-800 million cubic meters per year (i.e., the quantity required in order to stabilize the

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<sup>9</sup> Opinion regarding the Salt Harvest, at p. 5.

<sup>10</sup> Thus, according to ICL’s financial statement for 2017 (p. 102) – in 2017 ICL pumped about 420 million cubic meters from the northern basin of the Dead Sea, and upon conclusion of the process returned about 270 million cubic meters, so “net” pumping amounted to about 150 million cubic meters. A similar estimate was presented before the Team by the Water Authority (“net” pumping, during 2002-2013, in the range of 140-170 million cubic meters per year); the Geological Survey of Israel presented before the Team a slightly higher estimate (pumping of about 350 million cubic meters and a returned discharge of about 160 million cubic meters).

water level). Out of this deficit, the plants on both sides of the border are responsible, as aforesaid, for about 250-350 million cubic meters, of which ICL is responsible for about 150-200 million cubic meters and the Jordanian potash company to about 100-150 million cubic meters.

The State of Israel has been considering for many years how to stabilize the water level and prevent further deterioration. The various proposals currently suggest an assortment of solutions, each designed to contribute a certain quantity of water, together seeking to halt the massive decline in the Dead Sea's water level.

It is important to mention, in this context, the Water Conveyance project, being one of the solutions included in the said assorted mix of solution – the project involves pumping water from the Red Sea, which will be flowed into a desalination facility that will supply desalinated water to Jordan, Israel (for the needs of the Arava region) and the Palestinian Authority,<sup>11</sup> while leaving brine (the water filtered out during the desalination process) which will be transported to the Dead Sea; this, simultaneous to the direct transport of a limited quantity of water from the Red Sea to the Dead Sea. The aim of this project is twofold – to increase the sources of potable water in the region (primarily to benefit Jordan), and to aid in halting the decrease in Dead water levels. The project is intended to be a joint project of the Israeli and Jordanian governments, and a substantial part of its funding is expected to come from international entities, led by the World Bank.

According to the positions of experts at the Israel Geological Survey, the discharging of up to 400 million cubic meters per year into the Dead Sea is not expected to bring about any significant effects on the characteristics of Dead Sea water, and therefore there is no prevention from promoting the discharge of such quantity; beyond 400 million cubic meters, it is possible that various chemical and biological phenomena will develop in the Dead Sea, which might become a hazard. Hence, according to the recommendation of the Israel Geological Survey, approval for discharging an annual quantity exceeding 400 million cubic meters should only be granted after study is made of the actual effects of discharging smaller quantities. As part of the project as currently discussed, the planned annual quantity of water to be discharged into the Dead Sea is 235 million cubic meters. The prequalification stage of the bidding process of the project has already been carried out, with 5 contending groups meeting the technical criteria; at this stage, launch of the bidding process awaits a resolution by the Israeli government in this matter, and the matter is still under consideration. To the extent executed, the process for construction of the project is expected to take several years; at a later stage, the possibility is discussed to expand the project through the construction of an additional desalination facility in Jordan – which would increase the quantity of water discharged into the Dead Sea to about 310 million cubic meters per year.

Additional solutions being examined as part of the “assorted mix of solutions” include the delivery of water from the Mediterranean Sea via the Kinneret (Sea of Galilee), or the reclamation of water into the southern Jordan river. However, as aforesaid – as at the time of writing this document, a decision has yet to be made regarding the implementation of the Water Conveyance project or any other project designed to stabilize the Dead Sea's water level.

It should be noted that on April 15, 2018 a Government Resolution was passed respecting treatment of the Dead Sea region, wherein it was resolved, among other things, to establish an inter-ministry team to formulate the government's long-term policy concerning the future

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<sup>11</sup> While the water to Jordan and the Palestinian Authority will be supplied from the Israeli water system, as part of a water exchange agreement – wherein Israel (the Arava) would receive all water desalinated by the desalination facility.

of the region, including in reference to the issue of the water level in the Dead Sea's northern basin.<sup>12</sup>

## 5.2 The salt harvest

Another prominent environmental problem is that of the salt harvest in pond 5. As aforementioned, pond 5 is the largest evaporation pond, and at its banks are located the hotel compound. As a result of the evaporation process carried out by DSW in order to extract the resources, after the required minerals are extracted a residue of salt remains, which sediments at the bottom of the pond. The thickness of the salt sediment layer added each year is approx. 20 cm. The result is that the surface level of the pond rises by 20 cm each year, thus threatening to flood the beach. Until now, ICL's solution to this situation was to raise the dikes protecting the beach; however, this solution came very close to the point where the increasing water level of the pond would jeopardize the hotel compound.

On this background, in 2012 an agreement was signed between the Israeli government and Dead Sea Works for the implementation of the salt harvest project.<sup>13</sup> In this agreement, CL undertook to operate an array of harvesters that will harvest the salt from the bottom of the pond in order to transfer it to the northern basin. According to the agreement, ICL is obligated that as of 2017, the water level in pond 5 will not exceed 15.1 meters (and the height of the dikes will not exceed 16.5 meters). According to the agreement, ICL is obligated to incur a cost at the amount of ILS 3.04 billion to fund the project, as well as other costs (price increases) not deriving from decisions of the planning committees.

Implementation of the harvest project has commenced; however, in the first stage activity is focused only on the harvesting of salt from the bottom of the pond, while a detailed plan regarding the manner in which the salt will be transferred to the northern basin has yet to be approved. The quantities of salt in question, which would be piled each year, are very substantial, and therefore might have a significant effect on the landscape. According to estimates presented to the Team, the actual implementation of the second stage of the harvest project – i.e., transfer of the salt to the northern basin – is only expected to begin in the second half of the next decade, i.e. close to the end of the current concession period.

## 5.3 Additional social and environmental issues

Alongside the decreasing water level and the salt harvest issues, there is an entire array of other social and environmental issues pertaining to the activity of resource extraction from the Dead Sea, which need to be addressed as part of the examination of the continuation of industrial activity. We will now review the key issues, but it should be emphasized that this is not necessarily an exhaustive list:

- The Dead Sea concession area. The current concession area includes, alongside the area on which the actual plants are located, vast areas in the vicinity of the Dead Sea. This fact had great impact in the past, when ICL operated within the concession with very little

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<sup>12</sup> Government Resolution no. 3742, "Aid to Settlements and Municipalities in the Dead Sea Region in Addressing the Damages of Sinkholes and Amendment of Government Resolution", Section 6.

<sup>13</sup> The agreement was signed on July 8, 2012, following a government resolution in this matter (Resolution no. 4060), passed on January 1, 2012.

supervision. Over the years, planning and building laws were applied to the concession area (while referring to the rights granted to ICL by virtue of the concession), as were other laws, which expanded the level of oversight regarding its operations. However, the concession area currently contains settlement areas (Ein Tamar and Neot HaKikar), agricultural areas and tourism and recreation areas – all of which merit consideration of the question whether it is justified to include them within the allocation of future extraction rights, and a clear and optimal regulation of this issue.

- Flood prevention activities. Currently, ICL itself performs various activities designed to protect the plants against flood risks, with part of these works being performed at a distance from the plants themselves. Hence, when considering the concession area, it is necessary to address this matter, arrange it in a clear manner, and avoid a situation wherein there is no clear allocation of responsibility for handling the risk of floods.
- Mount Sodom. In the past, ICL has presented various plans for the extraction of potash from Mount Sodom, which is currently included in the concession area, while such activity may have an environmental effect on the site.
- Mining streambed materials. The stabilization and heightening of the dikes delineating the evaporation ponds (a frequently required action) necessitates use of large amounts of streambed materials. For such purpose, ICL mines such materials within the concession area, an activity having a significant environmental impact – both in terms of creating scenic hazards and in terms of its effect on streambeds and ecosystems. This issue used to be very significant prior to the application of the Planning and Building Law to the concession area, as such mining activities within the area left behind substantial environmental injuries. Since the application of planning and building laws to the concession area in 1995, the situation improved; however, it is necessary to have this issue clearly regulated in the future.
- **Groundwater drilling and pumping within the concession area**. ICL uses significant quantities of groundwater for purposes of its industrial activity (according to the estimation of the Ministry of Environmental Protection, over 30 million cubic meters per year, constituting over 20% of the total consumption of water supplied for industrial purposes in Israel). This activity pertains to two issues: first, the extraction of water is currently carried out without payment of any fee or extraction tariff; second, the groundwater in the existing drillings may be exhausted, which would then require the supply of potable water from other sources; this would require the construction of new water delivery infrastructures – which would cause an environmental footprint. It is necessary to ensure regulation of the issue, subject to and in accordance with water laws.
- Environmental hazards caused over the years in the area of the plants. Various environmental hazards have accumulated over the years in the areas of plants themselves and in the surrounding areas. A prominent example is the “salt mountain”, which is actually a waste pile adjacent to the plants. The arrangement of this issue must be reviewed – both in terms of treating existing hazards, and in terms of prevention of future

hazards.

## **Appendix B - International Review of Models for Allocation of Natural Resource Extraction Rights**

### 1. Background

This Appendix will provide an international review prepared as part of the Team's work respecting models for the allocation of natural resource extraction rights. The review focused on four aspects:

- a. Which entity extracts the resource? And in particular – is the entity private or public?
- b. What is the mechanism for granting the right to extract the resource?
- c. For how long is the right to extract the resource given? And can such extraction right be extended?
- d. The level of flexibility of the relevant authority as pertains to granting resource extraction rights (i.e., to what extent is the granting of concessions performed according to regulatory procedures and rigid criteria?)

The activity of resource extraction from the Dead Sea differs from ordinary mineral mining activity on three significant aspects:

- Firstly, due to the characteristics of resource extraction from the Dead Sea, the level of profitability may be much higher than that of an 'ordinary' mineral mining enterprise.
- Secondly, in the current state of affairs, wherein extraction has been conducted for four decades, there is no uncertainty regarding the existence or quality of the resource in the Dead Sea, or regarding the processes required to extract it (according to estimates of the Israel Geological Survey, the quantity of potash in the Dead Sea is expected to be sufficient for 350 years of extraction at the current levels); this, contrary to other enterprises which include a measure of uncertainty regarding the actual existence of the resource, or the economic cost of extraction thereof.
- Thirdly, in many mining enterprises an increase in production costs may occur as the resource progressively dwindles (to the point of discontinuation of production at a certain stage), while in the Dead Sea plants the production process essentially remains unchanged over time.

In light of the uniqueness described above, together with a review of the resource extraction industry, a review will also be presented of the oil and gas industry, since, in terms of profitability, this field may bear more similarities to the activity for extraction of resources from the Dead Sea than standard mining enterprises. This is designed to provide as broad a picture as possible of common practices around the world in the field of allocation of resource extraction rights. It would be emphasized that, in many respects, and particularly respecting uncertainty during the exploration stage, there are material differences between the oil and gas industry and the extraction of resources from the Dead Sea, and hence it is not possible to draw analogies, but rather to receive a broader picture regarding the issue of natural resource extraction. We include this review of the gas and oil industry in spite of the differences noted by the Sheshinski 2 Committee, which distinguished between the two types of resource extraction, so much so that it created two distinct excess profits tax mechanisms: one for minerals and another one for oil and gas.

A few additional remarks regarding this review:

- The review focused only on the issues noted above, and not on other issues such as taxation, planning and building, or environmental protection.
- The review addressed the issue of allocation of rights in natural resources in general, and was not focused on the allocation of rights in an active mine, as is the case in the Dead Sea; however, it obviously includes particular reference to cases that bear resemblance to that of the Dead Sea concession.
- The regulation governing the extraction of natural resources is complex, and in some cases includes different treatment of enterprises having different characteristics; the review presents the regulatory treatment of the fields that bear the most similarities to the extraction of resources from the Dead Sea.
- The review was based, as far as possible, on official governmental sources; it also made use of legal examinations describing the regulation pertaining to resource extraction. The list of sources used in the preparation of this review is presented at the end of this Appendix.
- The review focused on policies of extraction rights' allocation, and did not address legal and semantic aspects. Hence, the use of specific definitions and phrases should not be given excessive significance; for example, use of the phrase "concession" in certain countries as compared to "license" in others, does not necessarily signify substantive differences, but rather reflects the phrasing used in the various systems. For the same reason, the review does not delve into the minutiae of regulation in each country, but is designed, as aforesaid, to provide a general picture of policies.

## 2. Models of allocation of natural resource extraction rights – findings from the various countries

### Saskatchewan Province, Canada

The Province of Saskatchewan contains about 45% of the known global potash reserves, and is home to Canadian company Potash (currently operating under the name Nutrien). Aside from potash, uranium (22% of the known global reserves), natural gas, oil, coal and other resources are extracted in the Province.

Characteristics of the mineral mining activity in Saskatchewan:

- Mineral extraction activity in the Province is carried out entirely by **private entities**.
- In 2015 the Subsurface Mineral Tenure Regulations came into force, requiring **a bidding process to be conducted for the allocation of mineral mining concession areas** (following an application submitted by an entrepreneur seeking a permit to perform development works in a certain area); the winner is granted a permit to perform development works, subject to an undertaking to perform works beyond a defined financial threshold. The permit is given for a period of 8 years.
- In case the permit-holder is interested (provided that he became convinced of the economic feasibility of extracting the resource) – he may convert the permit into a concession, which will remain effective for a period of **21 years**.
- **The concession may be extended by additional 21-year periods**, provided that the concession-holder meets extraction targets (or, alternately – deposits a guaranty that he will meet such target in the future).

Characteristics of oil and gas extraction activity in Saskatchewan:

- The activity is carried out entirely by **private companies**.
- **Bidding processes** for exploration and extraction licenses are carried out periodically.
- The bidding processes are price-based (that is, the highest bid wins the license).
- Exploration licenses are given for defined period of several years, during which the company is required to reach the extraction stage.
- The extraction license is given for a period of **5 years** for ordinary fields and **15 years** for oil sand and oil shale fields – with an **option to extend** as long as actual extraction continues.

Although the activity, as aforesaid, is carried out entirely by private companies, in 2010 there occurred a major governmental intervention in the identity of the active companies. This occurred when international mining company BHP Billiton sought to acquire Potash. The Canadian government, under pressure of the provincial government of Saskatchewan, thwarted the acquisition, mainly due to concerns that it would lead to a loss of tax revenues, as BHP Billiton would be able to offset losses incurred through its other operations in the Province against Potash's profits; concerns also arose that BHP Billiton would leave the Canpotex group – the joint marketing entity of potash companies in the Province – in a manner that would lead to a decrease in prices, which would also be detrimental to the government's tax revenues.

#### State of Western Australia, Australia

The State of Western Australia is a leading global player in the extraction of iron ores, aluminum and other minerals; oil and gas extraction at a significant scope of is also carried out in Western Australia.

Characteristics of the mineral mining activity in Western Australia:

- Activity is carried out entirely by **private companies**.
- At the first stage, an exploration license is given for a period of 5 years; the license is given upon application (**no bidding process**).
- In case a resource is found the extraction thereof is economically feasible – a mining license is given for a period of **21 years**.
- The license **may be extended by additional 21-year periods**.

Characteristics of the oil and gas extraction activity in Western Australia:

- Activity is carried out entirely by **private companies**.
- **Bidding processes** for exploration licenses are held twice a year.
- The bidding processes are decided based mainly on **qualitative parameters** – proposed work plan, financial and technical capabilities, environmental risk management plan, etc. (and not based on price).
- The exploration license is given for an initial period of 6 years; in case that the exploration license leads to extraction of the resource – an extraction license is granted **for the entire lifespan of the well**.

It is worth noting the mechanism of “State Agreements”, which is very common in Western Australia (and to a lesser extent, also in other Australian states and territories), used for the regulation of large-scale projects in the field of natural resources (both mineral mining and oil and gas extraction). These agreements are signed by between the State and the entrepreneurs following

negotiations, and regulate all aspects of the project – **land rights, the work plan, required infrastructures, lifespan of the project and taxation issues**; upon conclusion of the process, the agreement is brought for approval by the parliament. The essence of these agreements is to provide the entrepreneurs with increased certainty, and sometimes also improved conditions (as compared to general laws); at the same time, the agreements specify the entrepreneurs' obligations more clearly. The last State Agreement was signed in January 2017, and deals with an iron ore mining project.

### United Kingdom

The United Kingdom is the second largest oil producer in Europe and the third largest gas producer. In these fields:

- All activity is carried out by **private companies**.
- Allocation of exploration licenses is carried out through a competitive process based on **qualitative criteria**, and particularly financial and technical capabilities; this, based on the perception that such an approach would result in the maximization of resource extraction.
- In case of discovery of resource whose extraction is economically feasible, the extraction license is usually granted for a period of **18 years**, with an **extension option** as long as extraction continues.

### United States

There is a wide range of resources extracted in the United States. Land rights usually also confer a right to the underground minerals, and therefore a significant part of resource extraction in the U.S. is conducted within the framework of transactions between private parties. However, as pertains to resources located in areas under federal ownership (either inland or offshore), there is a procedure of license allocation:

- Activity is carried out entirely by **private companies**.
- In the field of coal mining there are allegedly bidding process for the allocation of extraction licenses, with the procedure usually initiated by an application submitted by a company to the relevant authority (the Bureau of Land Management), seeking to receive a license to a certain area; however, it appears that in many cases there is only a single bidder (the same company that initiated the process). Coal mining licenses are granted for a period of **20 years**, with an **extension option** for additional 10-year periods.
- Oil and gas exploration licenses in federal marine areas are allocated through a bidding process, while the competition is based primarily on **price**; this, subject to minimum prices and also a retroactive of the winning bids – in order to ascertain that they reflect a fair value of the resources.
- In case during the exploration period (5-10 years extractable resources are discovered, the license remain effective throughout **the entire lifespan of the well**.
- A similar process is conducted respecting oil and gas resources in federal land areas.
- There are other types of resources that require examination via a competitive process wherever an extraction site having an economic potential is known to exist; however, in actuality, it appears that as pertains to such other resources (other than oil, gas and coal), the common practice is a procedure for the receipt of an exploration license upon application, followed by an extraction license.

## New Zealand

New Zealand is also a country with an abundance of natural resources, including coal, gold, oil and gas. Characteristics of extraction activities are as follows:

- Activity, both in the field of mining and in the field of oil and gas, is carried out by **private entities**; a significant exception to this used to be the company Solid Energy – the country's largest coal mining company, which in the past produced about 85% of the country's coal and was under state ownership. However, in 2015 the company entered a liquidation process after accumulating massive debts and all of its mining assets were sold off – and so the coal mining field has also eventually been handed over in its entirety to **the private market**.
- As pertains to mining enterprises, exploration licenses are granted upon request, after examination of the proposed work plan; in case a resource is discovered whose extraction is economically feasible, an extraction license is given for a period of **40 years**, with an option to extend it.
- In the field of oil and gas, exploration licenses are given following a **bidding process**, which is based on **qualitative** criteria – quality of the work plan, and the financial and technical capabilities of the bidder.
- In case extractable resources are discovered during the period of the exploration license, **an extraction license is granted for a period of 40 years**; in case such resource is not extracted upon conclusion of this period, the license may be extended at the discretion of the minister.

## Germany

Germany is the home of one of the world's leading potash companies (K+S), and is in fact the first location where potash was mined to be used as fertilizer. Characteristics of the resource extraction activity in the country are defined in the Federal Mining Act:

- All activity is carried out by **private companies**.
- Exploration licenses (for an initial period of 5 years) are granted **upon request** made a company seeking to examine extraction options, and thereafter (insofar as an extractable resource was found) extraction licenses are given.
- The effective period of the extraction license derives from the period required to extract resources in the project, usually up to **50 years**, but it is also possible to give a license for a longer period, insofar as this is necessary in order to make the investments required in order to develop such project; there is also **a possibility to extend the license** beyond the original license period, until extraction is completed.

## The Netherlands

In the late 1950s a huge gas discovery was made near the city of Groningen by the NAM partnership (a joint partnership of the international companies Shell and ExxonMobil), and extraction from this field continues to this day. In addition, there are activities for exploration and extraction from other, smaller discoveries. The main features of activity in the Netherlands are:

- Within the framework of a comprehensive agreement that regulated all issues relating to the extraction of gas from the gas field, and following negotiations with the partnership, **the Dutch government received 40% of the Groningen gas field**, with such rights referring to full partnership in ownership (the government's share is currently held by EBN – a

government-owned company; see further elaboration below).

- With respect to the other gas fields discovered since – the process is led by **private companies**, but the Dutch government is a significant partner in this process, as described below.
- The procedure for granting an exploration license begins with an application filed by a private company resecting a specific field – which then initiates a process wherein other companies may submit competing bids; in case several companies are interested in the license, a partnership is formed between them.
- In case an extractable resource is discovered, an extraction license is granted. The effective period of the license derives **from the estimated time required until completion of extraction of the resource**, and may be extended as long as extraction has not been concluded.
- The **Dutch government** enters as a full partner in each project **at a rate of 40%** (in the past this rate was also often 50%), a procedure currently performed by government-owned company EBN – a professional company in the field of gas and oil field development. It would be emphasized that this does not mean a mere share in profits, but rather **full partnership** – EBN participates in investments and expenses according to its share (40%). Thus, when company holding an exploration license seeks converting it into an extraction license, EBN “retroactively” compensates the license-holder for its respective share in all investments made during the exploration stage (alternately, a company holding an exploration license may request – but is not obliged to – that EBN enters as a partner already in the exploration stage).

### Norway

Oil exploration has been taking place in Norway since the 1960s, and oil was discovered in the Norwegian part of the North Sea in the late 1960s, by the Phillips company. The characteristics of exploration and extraction activity in Norway are:

- Activity is led by **private companies**, but the government takes a direct part in the country’s oil resources – in the past, this interest was **50% of rights in all fields**, and later on flexibility was introduced as to the exact rate. This is a full partnership between the government and private companies.
- In the past, government’s share in the fields was administered by government-owned company Statoil; it was later decided to transfer the “State’s Direct Financial Interest” (SDFI) onto another government-owned company (Petoro) – a professional company for oil and gas field exploration, development and extraction, whose representatives are part of the management of each project.
- Alongside Petoro, Statoil continues to operate as an ‘ordinary’ exploration and extraction company; i.e., it actually operates like a private company, though the Norwegian government’s ownership rate of this company is still 67%.
- Periodic bidding processes are held for exploration licenses; **the criteria are qualitative**, with an emphasis on the proposed work plan; **the government even negotiates with the leading bidders** in order to precisely define the work plan; upon conclusion of this process, a winner is selected.
- In case extractable resources are discovered, an extraction license is given for a period determined by the government – **usually 30 years**, but under certain circumstances up to 50

years.

- The minister **may extend the license** beyond said period, but at the same time the law provides that upon conclusion of the license period the government can **take ownership of the assets**.
- Norway encourages exploration and extraction of oil and gas by consortiums of companies, and also, generally, the multiplicity of companies in this field – over 50 companies are involved in the extraction of the country’s oil resources.

### Denmark

In 1962 the A.P. Møller company received an exclusive concession for the exploration and extraction of oil resources in the country (known as the “sole concession”); in a manner that may have somewhat surprised decision-makers at the time, the company discovered a huge oil field that still serves Denmark to this day. The company (currently known under the name Maersk) acts to extract the resources within the framework of the DUC partnership, together with Shell and Chevron. In 1981, following governmental pressure, the partnership was compelled to forego part of the concession areas, and since then these areas have also opened up for exploration and extraction. In 2003 a new agreement was entered between the partnership and the Danish government to extend the concession, under which the state also entered as a partner in the concession (see elaboration below).

The characteristics of exploration and extraction activity in Denmark are:

- Bidding processes for oil exploration in the predefined areas are held once every few years, mainly based on **qualitative criteria** – technical and financial capabilities, experience and work plan.
- Bids in these bidding processes are made by **private companies, but also by governmental energy company DONG** (the government’s ownership rate in this company is 76%).
- Since the 1980s, the government retains **20% of the rights in each license**; the government’s interest is currently administered by a government-owned company established for such purpose – Nordsøfonden, whose representatives are on the managements of the extracting companies.
- Extraction licenses are mostly given for **a period of 30 years**; there is **a possibility to extend the concession** beyond the said period.
- The most interesting development in Denmark as pertains to the Team’s work is in connection with the conclusion of the “sole concession” period – according to the original concession, it was meant to expire in 2012. On this background, and as it turned out that in the extraction of oil and gas from the field is actually expected to continue for many years after this date, in the early 2000s negotiations were held between the government and the partnership regarding the future of the concession. eventually, in 2003 an agreement was signed respecting the **extension of the concession by another 30 years** (i.e., until 2042), in return for the state’s entry as a partner in the concession at the rate of 20% (currently held via Nordsøfonden); at the same time, taxation of the extraction activity was also increased (as well as changes introduced into the taxation structure).

It appears that the main consideration in extending the concession was the desire to allow the uninterrupted continuation of investments during the years remaining until the expiration of the original concession, as there were concerns that in the absence of certainty as to continued extraction after conclusion of the original concession period, the

concession-holder would greatly limit its investments. There were also concerns that the uncertainty pertaining to continued extraction after 2012 would have also incentivized the concession-holder use the time left until expiration of the concession period to make maximal exploitation of extraction, at the expense of a graduated and orderly development of the field, which would eventually lead to less than optimal results. There is great resemblance between this case and the situation before us, of the Dead Sea concession, and yet there is a material difference, being that the extraction horizon of the Danish “sole concession” is limited, i.e. that oil and gas are expected to be depleted during the extension period (that is, the extension in fact means granting the possibility to complete extraction from the field); this is contrary to the situation in the Dead Sea, wherein the resources are not expected to become depleted in the coming decades.

### Chile

Mining constitutes 12% of the national product in Chile, with the main resource being copper, alongside a wide variety of other resources including gold, silver, lithium and also potash; Chile is the home of SQM – a global player in the potash industry.

The characteristics of extraction activity in Chile are:

- In the field of mining, the majority of activity is carried out by **private companies**; however, the leading copper mining company (CODELCO) is a **government-owned company**. In addition, **another government-owned company** (ENAMI) is active in the copper industry, focusing on collaboration with small and medium companies. In spite of this, the trend in recent decades is one of **a constant increase in the share of the private market**.
- In the field of oil and gas, most of the activity is carried out by a government-owned company (ENAP), but in parallel several contracts have been signed with private entrepreneurs (it should be noted, however, the as of today, the country’s gas and oil resources are limited).
- With respect to most resources, the state grants exploration licenses upon request, which are then followed by an extraction concession **effective until the end of the mine’s lifespan**.
- Due to historical reasons, oil resources as well as lithium have a different status – and exploration and extraction licenses can only be given under special contracts, for a predefined period; for example, in 1993 SQM signed a lease agreement for an area of lithium mines, in effect until 2030; a more recent contract was signed in 2016 with American company Albemarle, for a period of **27 years**. It should be noted that since in Chile, lithium and potash are extracted from the same mining sites, it is possible that in some cases this exclusion from the application of general laws (under which, as aforesaid, concessions are granted until the end of the mine’s lifespan) is actually effective also with respect to potash.

### Brazil

Brazil is the tenth largest oil producer in the world (as of 2016), and also has a wide variety of other resources. The characteristics of mining activity in Brazil are:

- The state grants exploration licenses upon request, which are then followed by a concession until **the end of the mine’s lifespan**.
- Most of the activity is carried out by **private companies**; however, it should be noted that

Vale – Brazil’s leading mining company – is still often regarded as having a link to the government; changes in its ownership structure, approved in 2017, were designed to reduce governmental influence and strengthen the company’s independence.

The characteristics of oil and gas extraction activity in Brazil are:

- Most of the activity is led by **Petrobras, which is owned by the Brazilian government** (at an ownership rate of nearly 70%).
- Alongside Petrobras, there is **activity carried out by private companies**.
- Generally, **bidding processes** are held for the allocation of exploration and extraction rights (except in certain areas, where Petrobras is granted exploration and extraction rights without a bidding process), under two separate mechanisms:
  - **Concessions** – allow independent activity by the winning bidders. The main criterion in these bidding processes is the price, and the concession period is 35 years in total – 5-8 years for the exploration stage, and **27 years** for the development and extraction stage.
  - In areas where the risks involved in exploration are considered to be relatively low: **production sharing contracts**, under which the winning bidder provides the state a certain rate out of the total resource extraction output; in addition, in these areas Petrobras has a vested right to enter the project at an ownership rate of 30%, and even be the operating entity. The criterion for choosing the winning bid in these bidding processes is the rate of resource output provided to the state; contracts are made for a period of **30 years**.

Over recent years criticism has been voiced whereby the terms of the contracts (under both mechanisms) are overly harsh and injurious to the entrepreneurs, so much so that it led to a decrease in the number of participants in the bidding processes. As a result, Brazil has recently introduced more flexibility to the terms in various aspects, among other things in the scope of required domestic procurement.

#### The Emirate of Abu Dhabi (UAE – United Arab Emirates)

The first concession for oil exploration and extraction in the Emirate was given in 1939, for a period of 75 years. The concession was handed over to several international companies (Total, Shell, Exxon, BP, Partex). In the 1970s the government resolved that it has an interest in becoming a direct partner in its oil resources, and for that purpose the government-owned company ADNOC was established. ADNOC entered as a partner, at a holding rate of 60%, in the ADCO land concession for oil extraction, as well as in the OPCO-ADMA and ZADCO offshore oil extraction concessions, and at a later stage ADNOC began operating not only as a passive partner but also as an active operator. ADNOC is currently the fourth largest oil company in the world.

The conclusion of the original concession period in 2014 is of special relevance to the Team’s work: the Abu Dhabi government resolved to hold a bidding process regarding the 40% held by the private companies – for a new concession for a period of 40 years. That is, the companies that held the concession (all of which are leading international companies – Total, ExxonMobil, Royal Dutch Shell, Partex, BP) were forced to contend on an equal basis with new companies, and in fact of the original concession-holders were indeed replaced upon conclusion of the bidding process. A similar process is currently being held with respect to the Emirate’s offshore oil fields.

### 3. Summary of key findings

Following is a summary of the key findings indicated by the above review:

- In the field of mineral mining, the vast majority of the activity is carried out by private companies.
- In the field of oil and gas – a greater measure of governmental involvement, both by way of partnership in the fields operated by private companies (e.g. in Norway, the Netherlands, Denmark), and by way of government-owned companies the themselves promote extraction activities; however, even in the field of oil and gas, private companies play a leading role in all of the countries reviewed above.
- In the field of oil, we see common use of bidding processes as means to allocate exploration and extraction rights; in the field of minerals this is less common, and the allocation of rights in a certain area is usually done at the request of a company seeking to explore the possibility of extraction. It is likely that the difference between the two fields stems from the gap in profitability.
- In some countries where bidding processes are held for the allocation of extraction rights such bids are won according to price (the highest bidder wins), while in other cases the bidding processes are decided based on qualitative parameters, such as experience, financial capabilities, and work plans.
- It appears that in countries where bidding processes are based on qualitative parameters there is more room for discretion on the part of the state as pertains to management of its natural resources, as the authorities are more actively involved in choosing the winning bid (as opposed to price-based bidding processes, where the state has less discretion in choosing the winner, and as a result also in the formulation of the work plans).
- The most prominent example of flexibility in the administration of resource extraction enterprises is the “State Agreements” mechanism in Australia, wherein the authorities reach an agreement with the entrepreneurs as to all the details of the project, and then bring the agreement for approval by the parliament. Another example of a relatively flexible approach that of Norway, where exploration rights (followed by extraction rights) are indeed granted in a bidding process, but the parameters for winning the bidding process are qualitative and the process includes negotiations with the bidders with respect to the development plans.
- Different countries determine different time periods for the concession, but in most cases such periods are relatively long periods of several decades. In addition, in the vast majority of cases there is an built-in option to extend the concession by an additional period beyond the original concession period – in a manner providing the entrepreneur with a great measure of certainty as to the ability to continue extracting resources even beyond the original concession period, while the state reserves a measure of control over the process.
- Toward its conclusion, the review presented two cases bearing some resemblance to the case of the Dead Sea concession, wherein the original concession period has reached its conclusion (without there being a built-in extension option):
  - In the case of the “sole concession” in Denmark it was resolved to extend the concession period by an additional 30 years in return for the government entering as a partner in to the oil extraction partnership and an increase of taxation; it appears that the main consideration of the Danish government was to avoid a situation wherein the concession-holder has no incentive to make investments

during the years until the end of the original concession. however, one should note the substantive difference between this case and that of the Dead Sea, whereby in Denmark the oil in the concession area is expected to be depleted during the extension period (thus, the partnership was actually given the right to exhaust the extraction of resources from the oil field).

- In the case of the ADCO field in Abu Dhabi, a different decision was made, to launch a new bidding process, in which the foreign partners in the concession were forced to compete on equal terms with new contenders (and most of them were in fact bested in the process and were therefore replaced). However, it should be noted that the key partner (60%) in both the original concession and the new concession, remained the government-owned company ADNOC, so we do not see here a complete replacement of the concession-holders.

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## Appendix C – Potential Candidates for Future Extraction Activity (Other than ICL)

The contents of this Appendix are based in the professional opinion provided by the Team’s external advisor, Mr. Yarom Ariav, dated June 24, 2017, and on updated respecting the developments that occurred since that date.

In order to analyze the options available to the State with respect to future extraction activity, it is advisable to try and understand which companies, other than the current concession-holder, may express an interest in such activity. This Appendix addresses this issue. The relevant companies can be divided into several groups:

### A. Potash companies

Global potash production is concentrated in the hands of a relatively small number of companies. Most of the world’s potash companies operate in underground potash mines, wherein potash is extracted through an entirely different technique than that used for potash extraction in the Dead Sea plants. The cost of potash extraction in the Dead Sea plants is significantly lower than that of potash mining in mines, and is similar to the cost of potash production by the extraction of subsurface potash brine, as produced by Chilean company SQM, as well as to the cost of potash production at the Jordanian potash plants.

The extraction of potash from an underground mine, usually located hundreds of meters below the surface, is a high-investment activity involving numerous costs. The activity is complex, involves safety issues, usage of costly excavation machines, ventilation systems, subterranean transportation systems and a significant scope of manpower working under harsh conditions. Conversely, the extraction of potash in the Dead Sea, through technology that has been developed and improved over the passing decades, is considerably simpler and cheaper. The low production cost in the Dead Sea stems from the high concentration of minerals in the Dead Sea, while the utilization of solar energy in the evaporation process contributes to reducing the energy costs of the process. Furthermore, due to the proximity of production facilities to the Ashdod and Eilat seaports, land transportation costs are relatively low. Finally, storage costs in Israel are also low, due to the warm and dry climate of the Dead Sea, which allows storing millions of tonnes in piles on open ground and not in enclosed storage spaces as practiced is most other locations.

As most of the major potash extraction companies operate in diverse geographical regions, there is no doubt that for certain customers there is a clear economic advantage in extracting potash from the Dead Sea, both in terms of shipping costs and in terms of potash production costs, alongside the economies of scale, existing marketing and operation channels and optimization between markets.

We will now detail the advantages that may be obtained by specific potash companies:

- Uralkali. The Russian potash company is responsible for about 15% of global potash sales. Through entering operations in the Dead Sea, the company would be able to considerably strengthen its competitive position in the global potash market, particularly following the

discontinuation of coordination with the Belarussian potash company Belaruskali, as described in the above review of the global potash market. The same applies also to the considerations of Belaruskali, who also holds approx. 15% of global potash sales.

- K+S (Kali und Salz). The German company, holding nearly 10% of global potash sales, would be able to improve its position in the global market through extraction in the Dead Sea, which would allow it to penetrate markets in which it is currently weak due to logistical inferiority.
- Nutrien (established in early 2018 as a merger of two Canadian companies – Potash Corporation of Saskatchewan (“Potash”) and Agrium). Canadian company Nutrien is the dominant factor in the Canadian marketing consortium Canpotex, which is responsible for the marketing of about 30% of total global potash sales. Until recently, it appeared that Potash may be the leading candidate to express interest in the Dead extraction activity, as for many years Potash held a minority share in ICL, and around 2013 even expressed an interest in increasing its share of ownership in ICL (an interest withdrawn in light of the opposition of the then Accountant General and Minister of Finance). Moreover, the fact that Potash is a part-owner of the Jordanian potash company (holding 28% of the company’s shares and defined a “strategic partner”) could have also created Potash profits stemming from synergy and optimization from the coordinated production of potash on both sides of the Dead Sea. However, a merger has recently been completed, as aforesaid, wherein Potash took over Canadian fertilizer company Agrium (that holds potash and phosphate mines in North America), leading to the emergence of Nutrien. It now seems that this merger would limit the company’s ability to enter extraction activity in the Dead Sea, in light of restrictions imposed on it by regulatory authorities in China and India as a condition for their approval of the merger (an approval required in light of the unified company’s significant market power) – compelling it to sell various holdings around the world, including its holdings in the Jordanian potash company and in ICL (which have already been sold). Therefore, it is possible that these recent developments make irrelevant the possibility of Potash-Nutrien having an interest in entering extraction activity in the Dead Sea; however, a final evaluation of this matter can only be made closer to the date of the bidding process.

## **B. Private funds**

Private equity funds are funds of investors, frequently institutional investors, while the firm managing the fund acquires investment assets, improves them and sells them off after the lapse of a decade or so in order to bring return to the investors. It is possible that a major fund would consider the Dead Sea extraction activity as a chance for investment and betterment of the asset, most likely one of the large funds, that possesses versatile managerial capabilities and which has already invested in a similar field. With respect to the Dead Sea, several such funds that invest in mining companies and projects may be noted, including: Greenstone Resource, Tembo Capital, Denham Capital, Resource Capital Funds and Arias Resource Capital. In most case investments are made in underground mining companies, and thus investment in the Dead Sea resource extraction activity – where production is based on the extraction of brine in a unique process – is not a typical investment for these funds. Another, possible more substantial matter, is that the operational, regulatory and environmental issues involved in acquiring and operating the Dead Sea concession are complex, and might deter investment funds from entering this field, together with the fact that the time horizon required in order to complete betterment might be significantly longer than customary in other fields.

### **C. Mining companies**

The mining companies currently not involved in potash extraction are usually mega-companies that produce various products, such as iron ores, copper, manganese, gold, etc. These companies have been aiming, for quite a few years, to enter the “members-only club” of potash producers, but have yet to succeed in doing so. Some of these companies, such as Rio Tinto, have even attempted to acquire and develop concessions for undeveloped potash deposits, but these projects have failed. BHP Billiton is also attempting, in recent years, to gain entry to the field of potash and is making significant efforts in this matter; thus, for example, in 2010 the Canadian authorities thwarted an attempt made by this mining colossus to take over Potash. In addition and in parallel, BHP has also been promoting the Jansen project – development of a large potash mine in Saskatchewan, Canada. Brazilian company Vale, engaged both in mining and fertilizer production, may also be a potential candidate. Vale has also made attempts to develop a solution mining mine in Saskatchewan, near Kronau, but this project has already been sold during 2017 to American potash and phosphate company Mosaic.

Extraction of potash from evaporation ponds, as performed in the Dead Sea, is indeed not a “classic” mining activity; however, extraction activity in the Dead Sea can enable the major mining companies to enter the potash market and provide them a platform from which to commence acquisition of an underground extraction potash company, such as Potash-Nutrien, K+S or Belaruskali.

### **D. Fertilizer producers**

Producers of compound fertilizers purchase potash as a raw material for the potash compounds they produce. This category includes producers of NPK commodity compounds, as well as specialty fertilizer producers such as Haifa Chemicals that produces potassium nitrate. Production of potash in the Dead Sea would allow the fertilizer companies to create vertical integration. The advantages of such integration would provide them with independence from fluctuations in potash prices and establish their competitive position in the fertilizer market. Haifa Chemicals, a fertilizer company located in Israel but dependent on the supply of raw materials (potash, phosphate rock and ammonia) from external entities, may obtain a clear advantage by having control over the supply and price of potash – one of the main raw materials consumed by it. However, the scope of potash production in the Dead Sea is obviously much greater than Haifa Chemicals’ potash consumption, and so in this case the Yiddish witticism “for a glass of milk you don’t have to buy a whole cow” is quite apt. Larger fertilizer producers, such as NPK producers in India, may consider such vertical integration, in a manner that would provide them with control over the price and secure supply of a vital raw material.

### **E. Bromine and bromine compound producers**

The bromine market is highly concentrated and the majority of production is attributed to only three companies, including Israeli company Dead Sea Bromine. The Israeli bromine company’s two competitors, Albemarle and Lanxess (Formerly Great Lake Solutions and Chemtura), would enhance their position in the bromine market if they also produce bromine from the Dead Sea (Albemarle is already active on the Jordanian side of the Sea). On the other hand, it is difficult to assume that a bromine producer would acquire the Dead Sea concession solely for the

manufacturing of bromine and without a partnership with a significant entity in the world of potash, as the potash is the dominant product of the Dead Sea products.

#### **F. Fertilizer consumers**

It is possible to conceive also interest on the part of large consumers of fertilizers, such as Sinochem in China or the major fertilizer consumers in Brazil or India, who would consider it advantageous to “take possession” of a source of a product that is vital to them. However, it may be assumed that the chances of a predominantly consumer entity – albeit a wholesale consumer – entering the world of complex industrial manufacturing as exists in the Dead Sea, are rather slim, except in case a governmental entity. Such as the Chinese government, attributes strategic importance to control over a source of a fertilizer that is of great importance to Chinese agriculture.

#### **Summary**

Hence, there is a wide range of companies having different characteristics which may have interest in the Dead Sea resource extraction activity. However, it is very difficult to estimate the actual chances of this, and it is possible that in regard to many of the companies discussed above, the chances of this are relatively low, due to the reasons discussed above; it may be assumed that the most natural candidates are counted among the small group of companies active in the field of potash, while also taking into account for the state of the market and the variety of business and regulatory considerations applicable at the time of implementing the bidding process.

## Appendix D – Theoretical Analysis of Alternatives for Implementation of a Bidding Process for the Allocation of the Future Extraction License

The contents of this Appendix are based in the professional opinion provided by the Team’s external advisor, Prof. Motty Perry, dated January 15, 2018.

A main alternative for the allocation of the future operation license is by way of a bidding process. First, a competitive process is derived from the State’s obligation to maintain equal opportunities and ethical integrity in its economic engagements with private entities. All the more so when dealing with an engagement involving the administration of a public resource.

Second, a bidding process is in many cases the best means for maximizing the target function of the bidding process initiator – in this case, the State. However, the unique characteristics of the Dead Sea concession must be considered, as they may have implications on the actual implementation of a bidding process, as well as its expected outcomes.

### 1. The auction theory and the “winner’s curse”

All analyses of the alternative of holding a bidding process must take into account considerations and insights deriving from the auction theory. The auction theory, which derives from the principles of the game theory, analyzes the way in which the players in an auction calculate their bids without having certain knowledge of the value of the auctioned item, the information possessed by the competing bidders and their strategies. The theory allows us to draw insights respecting the optimal process for the seller, in order to incentivize competition and reach the optimal outcome. The auction theory is considered one of the greatest success stories of modern mathematical economics. The centrality of the game theory in “new economics”, and particularly in the field of market planning, has been acknowledged by the committee awarding the Nobel Prize in economics, as since 1994 the committee has repeatedly awarded prizes for contributions made in this field.

A properly planned bidding process should maximize the target function of the initiator of the bidding process. In our case, the government’s goal is to cause an efficient allocation of the resources, and to obtain a price that reflects the true and optimal value of the resource.

However, when the potential bidders are uncertain as to the value of the resource and when information possessed by one competitor may be relevant to the value expectation estimations of another competitor, as may be expected in the case before us, we may assume that the competitors would seek to avoid falling under the “winner’s curse”.

The “winner’s curse” has been discussed in a variety of fields and environments. The origin of the phrase can be found in a finding of a group of engineers in the field of oil extraction, who argued that the oil companies fell victim to the curse in the 1960s and 1970s, and therefore suffered low profitability in their annual lease contracts. In their study, the engineers examined the quality of projections of the value of winning in outer continental shelf oil lease auctions won by the companies (the researchers had data both respecting the companies’ initial estimations and the final value). While the researchers expected that the winning estimations would be partly overestimations and partly underestimations, they were surprised to discover that, in nearly all auctions, the winning bids reflected overestimations. **The resource turned out to be worth less than the estimation of the winning bidder.** These findings were verified and repeated also in the other major companies of the era. The phenomenon has been dubbed “the winner’s curse”. Thus,

winning an auction is, to a great extent, “bad news” to the naïve bidder, as it might indicate to the winner that their estimations regarding the value of the resource were probably more optimistic than those of the other competitors.

A systematic analysis making use of game theory tools provides a fine explanation of this outcome, and shows that indeed, a rational player must take the “winner’s curse” into account and understand its implications when making a bid. In particular, such an optimal bid is one that takes into account not only the bidder’s initial estimations regarding the value of the resource, but also such bidder’s estimation of the value of the resource *after* learning that theirs was the winning bid. The latter estimations should be lower than the initial estimations, as the message entailed in winning is that their estimations were the most optimistic.

In particular, the more inferior a competitor’s information is, as compared to the information possessed by the other competitors (or any part thereof), the more caution such competitor should employ when making their bid, in order not to fall victim to the “winner’s curse”. Winning against a competitor that possesses superior information necessarily indicates that the winning bid is higher than that which the player having superior information was willing to bid.

The theory shows that where the players are *a priori* identical in terms of technology and market access, and differ only in the information they possess regarding the value of the concession, the player possessing inferior information *would abstain* from participating in a standard auction (sealed bid auction). A considerable part of the theory’s contribution deals with planning an auction that overcomes these problems. Obviously, a situation is conceivable wherein the player having inferior information has superior technology or market power, and in such case the above conclusion is not necessarily correct; however, it is important to note that theory shows that even a player having superior technology but inferior information must be very cautious and conservative in their bids.

## 2. Effect of the number of bidders in the bidding process

Where a sufficient number of potential bidders, having no contacts between them, are available, a properly planned auction (according to the theory’s findings in this matter) minimizes the advantages enjoyed by the player having superior information. Such an auction is usually a dynamic auction, planned in such a manner whereby the actions of the players throughout the bidding process divulge (to the extent possible) the information they possess and make it public.

Such an auction minimizes the (artificial) advantage possessed by the player having inside information and increases that chance that the winner would be the bidder having the managerial\technological advantage, for whom the value of the auctioned item is highest, and thus such bidder is necessarily the one willing to pay more. Such an auction also increases the chances that bidders would be willing to participate in the auction even if the information they have is inferior.

On the other hand, one should recall that even an optimal auction would fail in case the information gaps are extreme and the number of (true) bidders is small. As discussed in the previous section, which dealt with potential candidates for future extraction activity in the Dead Sea, it is possible that this is indeed the situation before us: competitors who are not part of the potash market suffer from extreme information inferiority, while the number of competitors within this market is very limited; **hence, insofar as it is resolved to hold a bidding process, it is necessary to make every effort in order to allow the largest possible number of competitors to participate**, and such process must be planned so as to minimize the advantages enjoyed by the possessor of information, i.e., the current concession-holder.

3. Effect of the downstream plants' advantage – realization of profits in adjacent markets

When a firm holds market power in markets adjacent to the market on which competition in the auction is held, the price it would be willing to pay for preventing entry of a competitor would be greater than the price such competitor is willing to pay for such entry. The reason is that prevention of the competitor's entry would preserve in the hands of the former firm its profits in adjacent markets, in addition to its profits from the market under auction. Conversely, the competitor's entry would only provide such competitor with the profits from the market under auction.

This plain insight is relevant also to our case. ICL has downstream plants (particularly in the field of bromine), as well as a marketing and shipping array which, together with the Dead Sea's resources, grant it market power, alongside the profits deriving therefrom, in the relevant markets. Loss of the Dead Sea concession would severely undermine its ability to leverage its current market power, *as well as* undermine the efficiency enjoyed by a concession-holder having vertical integration.

As described in the abstract example above, also in this case the price that ICL would be willing to pay in order to preserve its market power and production integration is greater than the price which a competitor (equivalent to ICL) would be willing to pay for the concession, having no downstream plants and marketing and shipping array. This advantage of ICL intensifies the risk of "the winner's curse" (as defeating ICL in this auction means that the winner estimated that it can generate more value from the resource than ICL, including the value generated by ICL from the adjacent markets), and thus constitutes an additional entry barrier for all potential competitors.

4. Operating risks during the transition period

Another obstacle in the way of the auction's success is the concern that, in the years remaining until expiration of the concession, the concession-holder may attempt to avoid investments, at the expense of undermining future profitability. Mechanisms must be put into place that would prevent ICL from implementing such a strategy, among other things through the use of various legal means available to the State (see extensive discussion of this matter in Appendix E, which clarifies, *inter alia*, ICL's obligation to act with due diligence in its operation of the concession); however, it is possible that potential competitors, having a profound understanding of these considerations, would have concerns that these means would prove insufficient in order to completely prevent such conduct, and would therefore be doubly cautious in examining whether they should participate in the bidding process, and at what price.

5. Effect of Section 25 on the Dead Sea concession area

Section 25 of the Dead Sea concession note provides:

"25. If, after expiration of the concession, the government seeks to offer a new concession for the extraction of mineral salts, minerals and chemicals from the Dead Sea to any person other than the concession-holder, the government shall first offer the concession-holder a new concession under terms no less favorable than those it wishes to offer such other person."

Without addressing the legal aspects of this Section, it should be emphasized that ICL's great

advantage in the bidding process stems from its information advantage as compared to the potential competitors and from the existence of downstream plants owned by it. Therefore, the State's duty to prepare for the eventuality wherein potential candidates would fear making attractive bids in the bidding process, does not derive from this Section and is not dependent on the interpretation given thereto.

6. Summary

ICL enjoys a significant advantage as compared to other potential contenders: it has a substantial information advantage as the current concession-holder, and in addition owns plants for the production of downstream products located nearby, as well as a full land transportation array. In light of the fear of the "winner's curse", these advantages might reduce the motivation of other contenders to make attractive bids in the bidding process. This problem is especially significant in light of the fact that it is quite possible that the number of serious potential candidates is limited in any event (especially as long as the current – and relatively low – level of potash prices remains in effect).

In spite of the foregoing, this analysis does not mean to conclude that a successful bidding process cannot be held. However, in order for it to be successful, it requires planning and adjustment – and, in particular, determination of arrangements in the events that only a limited number of competitive bids are made and/or bids which are all below the determined minimum price. This matter applies, in actuality, to any and all planned bidding processes, but in light of the specific circumstances, it is doubly significant.

## Appendix E – Significance of the Lack of Certainty Respecting the Future of the Concession Concerning the Interim Period Until 2030

As described in the preamble to this Report, the Team was established on the background of concerns that the lack of certainty respecting the future of the concession after 2030 undermines the possibility of making investment. This Appendix will elaborate on this issue.

A considerable part of the plants' investments is long-term investments. For example, certain assets, particularly dikes and ponds, are usually depreciated according to a lifespan of 40 years.<sup>14</sup> Moreover, the plants make ongoing investments, at scopes of at least hundreds of millions of shekels every year; that is – these are not investments concentrated at specific points in time, but rather investments required on an annual basis. In order to make long-term investments, which are naturally expensive investments, the concession-holder needs to know that it would indeed benefit from the fruits thereof for a long enough period in order to return such investments. This matter is particularly significant in a reality of relatively low potash prices, wherein many of these investments require a particularly long return period.

Therefore, the lack of certainty respecting the identity of the concession-holder after 2030 may have a significant impact on the scope of investments during the period until the lapse of the current concession, as well as on their characteristics. The uncertainty respecting the end of the concession period may also affect the incentives in the field of maintenance and operations. In the absence of certainty regarding the identity of the future concession-holder, there are concerns that during the years until the end of the concession, ICL would have a lesser incentive to perform preventative maintenance, but rather only breakdown maintenance. Such maintenance is not economically feasible, as preventative maintenance is designed to be performed where it is cheaper than the breakdown maintenance that can be expected in absence of the former. Another possible effect of the lack of certainty respecting the end of the concession period might also occur in connection with the water-pumping regime – over the years, this matter has been managed by ICL based on long-term planning, whose purpose is to allow continuous and stable production; in the years preceding the end of the concession, ICL's incentives may be different and cause it to focus on maximizing resource extraction on the short-term, at the expense of economic inefficiency in the long-term.

It is important to emphasize that, as the government receives a take in the income and profits deriving from the concession (through the taxation array – royalties, excess profits toll and income tax, and in the future – also from the bidding process for allocation of the extraction rights), an inefficient investment and maintenance policy would also undermine the government's revenues.

Hence, the State must determinedly act in order to prevent such conduct on the part of the concession-holder. It should be emphasized the ICL is obliged, as the concession-holder and according to the concession note, to act with due diligence. Operation of the concession without due diligence may amount to a violation of the terms of the concession. Moreover, the Special State Share allows the State to receive all information and documents which an ordinary shareholder or company director is entitled to receive for the purpose of safeguarding the State's essential interests (Article 8(b)(4) of ICL's articles of association), which include **oversight of control over the resources for purposes of the effective development and utilization thereof** (Article 8(b)(8)(b) of ICL's articles of association). Hence, the State has at its disposal a legal instrument allowing it to oversee ICL's conduct and to know whether the concession-holder is acting with due diligence in the utilization of the public natural resource entrusted to it by virtue of the concession note.

In addition, the current concession includes a mechanism designed to limit the effects of the uncertainty toward the end of the concession period. According to the current concession, ICL will receive payment

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<sup>14</sup> See ICL's financial statement for 2017, Note 3\D(3).

for the value of fixed assets remaining upon conclusion of the concession period,<sup>15</sup> while, according to the concession note, payment for the assets should also reflect their physical state of repair. Thus, even in the absence of certainty respecting the future of the concession, ICL knows that it will receive compensation for its investments, and, on the other hand, that the more it decreases its investments, the lower would be the value of its assets upon conclusion of the concession period.

Another instrument allowing the State to reduce the said concern stems from the fact that, as pertains to investments made over the final ten years of the concession whose lifespan exceeds the concession period, ICL is required to obtain the government's advance approval, as condition for receiving such payment. This matter was designed to prevent a situation in which the government is required to pay for investments it was not interested in, while at the same time allowing for a greater measure of certainty on the part of the concession-holder regarding the compensation to be given in return for its investments.

Nevertheless, it is necessary to take into account the expected difficulties in employing the said mechanisms. Experience indicates that there exists an inherent difficulty in employing bureaucratic mechanisms in the determination and enforcement of investments and business activities. This derives from the fact that the supervisor usually suffers from inferiority in information vis-à-vis the supervisee, leading to disputes that make it difficult to effectively manage the activity. In the context of the Dead Sea concession, the fact that a considerable part of the investments is unique to this site might further increase this difficulty as pertains to the approval of new investments, in the absence of known objective data regarding the anticipated costs and benefits, as well as regarding the ability of oversee the physical state of the assets upon conclusion of the period. In light of all of the foregoing, it appears that significant benefits may stem from an attempt to eliminate the uncertainty respecting the future of extraction activities.

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<sup>15</sup> Subsection 24(a) of the Dead Sea Concession Law: "Upon expiration or earlier termination of this concession (hereinafter – the "Termination Date") all fixed tangible assets belonging to the concession-holder shall become vested in the government, and the government shall pay the concession-holder in respect of such fixed tangible assets the depreciated replacement value thereof as at the Termination Date. All other property of any nature whatsoever belonging to the concession-holder at the Termination Date shall remain the property of the concession-holder.

The expression 'depreciated replacement value' in relation to the fixed tangible assets means the cost of acquiring similar assets when new at the market price prevailing at the Termination Date, less depreciation in respect to the period of use of each asset, such depreciation to be based on the technical life of such asset, taking into account the condition of maintenance of the same by the concession-holder and the conditions prevailing in the Dead Sea region."