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Fortieth session  
Agenda item 81**ISRAEL'S DECISION TO BUILD A CANAL LINKING THE  
MEDITERRANEAN SEA TO THE DEAD SEA****Report of the Secretary-General**

1. The present report is submitted in pursuance of General Assembly resolution 39/101 of 14 December 1984 entitled "Israel's decision to build a canal linking the Mediterranean Sea to the Dead Sea". In paragraphs 5 and 6 of the resolution, the Secretary-General was requested "to monitor and assess, on a continuing basis, and through a competent expert organ, all aspects - juridicial, political, economic, ecological and demographic - of the adverse effects on Jordan and on the Arab territories occupied since 1967, including Jerusalem, arising from the implementation of the Israeli decision to construct this canal and to forward the findings of that organ on a regular basis to the General Assembly" and to report to the General Assembly at its fortieth session on the implementation of the resolution.
2. It will be recalled that, pursuant to earlier resolutions of the General Assembly (36/150, 37/122 and 38/85), United Nations experts visited Israel and Jordan in 1982 and Jordan in 1983 and 1984. Their findings were annexed to the reports of the Secretary-General dated 30 June 1982 (A/37/328-S/15277), 31 October 1983 (A/38/502) and August 1984 (A/39/142).
3. On 10 May 1985, the Under-Secretary-General for Technical Co-operation for Development addressed letters to the Permanent Representatives of Israel and Jordan requesting that their Governments make available to the Secretary-General such information as might be relevant in light of the provisions of resolution 39/101 and provide a small team of experts with access to sites that they might need to visit and arrange the contacts they might require with the officials directly concerned.

4. On 21 May 1985, the Permanent Representative of Jordan replied that his Government would be glad to receive and facilitate the work of the team of experts and that the Jordanian authorities would be pleased to forward any information which would become available on the Israeli project.

5. In a reply dated 29 May 1985, the Permanent Representative of Israel stated that his Government believed that the canal project would benefit the population of the entire area, and that Israel had therefore repeatedly sought to discuss and co-ordinate this matter with Jordan. The Government of Jordan had not responded to those offers or to Israel's queries on Jordan's official intention to divert Red Sea waters to the Dead Sea. The Permanent Representative further observed that resolution 39/101 "calls upon a team of experts to assist the Secretary-General in preparing a report to monitor the 'adverse' effects of the canal project, thus predetermining the outcome of the report". The Government of Israel therefore believed that no useful purpose would be served by an additional visit of the team of experts.

6. In a note verbale dated 1 July 1985 the Acting Permanent Representative of Israel informed the Secretary-General that on 11 June 1985 the Minister of Energy and Industry of Israel had instructed the Mediterranean-Dead Sea Corporation to cease forthwith all work related to the canal in question.

7. In accordance with arrangements previously worked out with the Jordanian authorities and at the latter's request, a United Nations mission visited Jordan from 19 to 25 September 1985. The report of the mission is reproduced in the annex.

## ANNEX

## I. INTRODUCTION

1. The essential task of the 1985 mission was to bring up to date, in light of the provisions of General Assembly resolution 39/101, the available information on the Israeli project to build a canal linking the Mediterranean Sea to the Dead Sea and its effects on Jordan and the Arab territories occupied since 1967.
2. In carrying out its assignment, the mission visited Wadi Mukheiris, Wadi Zarqa-Main and Wadi Mujib, as well as the Lisan Peninsula, Mazra, Safi and Feifa. It was also able to visit the agricultural sites of the Mujib-Ghors Irrigation Project, the areas developed by the Arab Potash Company, the headquarters of the Jordan Valley Authority at Feifa, and the Agricultural Products Marketing Center at Safi. The mission gathered information provided by the Jordanian authorities on agricultural development, mining activities, tourism and recreation, and environmental concerns (see appendix).

## II. AGRICULTURAL DEVELOPMENT

3. According to documentation provided by the Jordan Valley Authority, raising the level of the Dead Sea from its current elevation -401 metres (m) below Mediterranean Sea Level (MSL) to -390 m MSL, by the Mediterranean-Dead Sea Canal, would have serious economic effects on Jordanian agriculture. Irrigated lands, like the Mujib-Southern Ghors Irrigation Project, at both the northern and southern ends of the Dead Sea would be affected. The 1984 mission report (A/39/142, annex I) described in detail the land area affected and the possible economic consequences.
4. The Mujib-Southern Ghors Irrigation Project at the south-eastern end of the Dead Sea is being developed in three stages. a/ According to information provided by the Jordan Valley Authority, Stage I of the project, covering 4,700 hectares (ha) has essentially been completed. The land has been turned over to farmers who in September 1985 were either preparing their land or were already planting their "early season" (September-December) crop. All the land will be irrigated by drip irrigation. A highly sophisticated water distribution system has been installed by the Jordan Valley Authority. Approximately 1,000 ha under Stage I will be covered by greenhouses by 1990. Each greenhouse will cover one-half dunum (500 square metres) and will cost between 1,000 Jordanian dinars (JD) to JD 1,300 or \$US 2,710 to \$US 3,523 (1 JD was equal to \$US 2.71 at the time of writing). Major crops will include tomatoes, cucumbers and peppers.
5. The Mujib-Southern Ghors region has a warmer winter climate than the Jordan Valley to the north and crops will be ready for market about six weeks to two months earlier. As indicated by the Jordan Valley Authority, this provides the farmers with a highly advantageous marketing situation. A marketing authority has been established in the region during the past year. An Agricultural Marketing Centre has been established in Safi. The Centre covers 2,000 m<sup>2</sup> and now has a tomato paste processing plant in operation.

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6. The mission was informed that the Jordan Valley Authority had developed community services in the five villages in this region: Mazra, Dhira, Safi, Nagi and Feifa. Five schools with 192 classrooms to support 7,000 students have been constructed. A complete health care centre has been established in Safi. Population in the region has increased significantly. In 1979, it was estimated that there were between 4,000 and 5,000 inhabitants in the Safi region; currently there are about 16,000 inhabitants, and it is expected that there will be over 40,000 inhabitants in the region by the time Stage III is completed. b/

7. Representatives of the Jordan Valley Authority indicated that final surveys are now being made for Stage II and it is expected that this stage will be completed by 1986-1987. Stage II will cover some 4,600 ha of irrigable land and would supply industrial water to the Arab Potash Company. Stage III, which would develop 1,760 ha of irrigable land, will be completed by 1988/89.

8. The mission noted that 25 kilometres of the Sweimeh-Ghor Al-Safi road along the north-eastern shores of the Dead Sea had been completed. According to the Jordan Valley Authority, construction on the remaining 25 kilometres (km) of roadway from Zara to Mazra is scheduled to begin in October/November 1985. Completion of this roadway will give the Jordan Valley and northern region of the Dead Sea direct access to Aqaba, Jordan's seaport on the Red Sea. This route will cut off at least 50 km of difficult road, climbing from the floor of the Dead Sea to the desert road, including a climbing elevation of over 1,000 metres (m) in less than 24 km. Scheduled for completion by 1988/89, the road is expected to stimulate economic growth of the region for both agriculture and tourism. The rise in the level of the Dead Sea from -401 m MSL to -390 m MSL would flood the roadway in a number of locations along the eastern shores of the Dead Sea and would cause serious disruption to the economy of the Jordan Valley.

### III. MINERAL PRODUCTION

9. The Arab Potash Company programme has been described in detail in the 1984 mission report (A/39/142, annex I). In 1984 the Arab Potash Company produced approximately 500,000 metric tons of potash. c/ According to company officials, in 1985 (the 12-month period ending 1 September 1985) it produced over 800,000 metric tons of potash. It was also reported that the current rate of potash production is 1.2 million tons/year and that the large increase in production is due in part to the fact that the company has changed the size of its carnalite pans and that these are now in full production. Plant modifications, at a capital investment cost of \$US 8 million are expected to make the operation still more productive. When completed, these modifications will allow the plant to produce annually from 1.3 to 1.4 million metric tons of potash. According to Arab Potash Company officials, there is a large vein, several metres thick, of solid carnalite rock about 1,300 m beneath the surface of the Lisan Peninsula. They anticipated that this potash deposit could be harvested by saline-water injection from the Dead Sea, resulting in a substantial increase of potash production.

10. Arab Potash Company officials also indicated that there had been exploratory drilling for oil and gas on the Lisan Peninsula and the surrounding area. They

also indicated that there were sulphur deposits on the Peninsula and that there was high-grade limestone rock nearby which would enhance the scope of their operations.

11. According to Arab Potash Company officials, raising the level of the Dead Sea from -401 m MSL to -390 m MSL would substantially impair potash operations. It would force the Company to raise their dikes by 7 m; it would require it to pump brine from greater depths to maintain the current salt concentration of water being pumped into the solar evaporating pans. The outlet for the proposed Mediterranean-Dead Sea Canal would be located just opposite the evaporating pans for both the Arab and Israeli potash works. Having the outlet this close to both units would raise serious problems with respect to the concentration of the brine available. The Dead Sea contains about 10 times more salt than does the Mediterranean Sea.

12. According to Jordanian experts, much of the Lisan Peninsula would be inundated if the Dead Sea level were raised by 11 m from -401 m MSL to -390 m MSL. In fact, raising the level of the Dead Sea to -386 m MSL would completely cover the existing potash operations. d/ Arab Potash Company officials also indicated that the level of the Dead Sea could fluctuate by a metre or more during the rainy season. Excessive rains with increased run-off can rapidly increase the level of the Dead Sea. Such fluctuations are not uncommon.

#### IV. TOURISM AND RECREATION

13. According to officials from the Ministry of Foreign Affairs, the hot springs along the north-eastern shores of the Dead Sea provide a popular winter tourist attraction for the residents of Amman and other towns in Jordan. They are also potentially attractive to the people of northern Europe who look for warmer locations during the winter season. Resort development along the north-eastern shores is well under way. Three resort facilities are already in place, with six more projected by 1990.

14. Raising the level of the Dead Sea from -401 m MSL to -390 m MSL would disrupt access to these facilities, and would flood some of them. The 1984 mission report (A/39/142, annex I) detailed the extent of the proposed development and expressed the concern of the Jordanian Government about the possible consequences that the Mediterranean-Dead Sea Canal would have on their resort development.

#### V. ENVIRONMENTAL CONCERNS

15. The environmental changes that could take place have been detailed in various reports including the 1982, 1983 and 1984 mission reports (A/37/328-S/15277, annex; and A/38/502, annex, and A/39/142, annex, respectively). Environmental aspects were examined in greater detail in a study dated 23 February 1983 prepared for the United Nations Environment Programme (UNEP/GC.11/3/Add.4).

16. Jordanian experts have also indicated that the use of the water from the canal for marine aquaculture, solar pans, desalination, artificial lakes could also pose serious problems to the underlying fresh water aquifers which move in a westerly

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direction from the West Bank towards the Mediterranean Sea. These aquifers are precious resources valuable to all peoples in the region. Once salt water reaches these aquifers, they could be damaged for long periods of time. e/

17. As indicated by the Ministry of Foreign Affairs and the Arab Potash Company, one of the most serious problems faced by Jordan would be from the salt-water intrusion into the underground aquifers containing fresh water along the eastern border of the Dead Sea. The intrusion of salt water from the rising level of the Dead Sea would cause an eastwardly movement of the dividing line between the fresh water and salt water on the eastern shore of the Dead Sea. The intrusion of salt water would displace the fresh-water reserves in the aquifers, causing them to move upwards and outwards to be lost into the Dead Sea. Besides the accelerated loss of fresh water through displacement, the intrusion of salt water beneath the fresh water could cause a large loss in fresh-water storage capacity as it now exists at the -401 m MSL level. f/ With both Jordan and Israel close to using 100 per cent of all of their currently available renewable water resources, the above-mentioned potential loss of fresh water could be of catastrophic proportions.

18. Breaching of the canal itself, either through seismic events or by other natural or man-made causes, would dump large quantities of salt water directly over the aquifers. Since the canal is supposed to carry 50 cubic metres of water per second ( $m^3/sec$ ), any significant breach in the canal would cause significant amounts of salt water to be dumped onto the lands overlying the aquifers. g/

19. The chemical nature of the Dead Sea could well be radically changed by the addition of salt water from the Mediterranean Sea which is much less saline and differs in chemical composition (A/38/502, annex, para. 48). The projected Israeli canal would lead to the inflow of the Mediterranean waters into the Dead Sea at an average rate of 1,700 million  $m^3/year$ . h/

20. The rise in level of the Dead Sea along with the change in the surface chemical composition of the Dead Sea could have serious repercussions on the environment along the borders. There were no studies available, to the best of the mission's ability to determine, about the consequence of such changes and their impact upon the environment.

#### Notes

a/ See Hashemite Kingdom of Jordan, Jordan Valley Authority, Wadi Mujib and Southern Ghors Irrigation Project. Feasibility report prepared by Binnie and Partners (Overseas) Ltd., Jouzy and Partners, Ove Arup and Partners (January 1979). Includes detailed farm plot layouts, various cropping systems, drainage canals, irrigation layouts, engineering drawings for water delivery systems, drainage, location of townsites, etc.

b/ Information and estimates provided by the Jordan Valley Authority.

c/ Figures on costs and production provided by the Arab Potash Company.

Notes (continued)

d/ Abdullah Hamadneh, "Aims and dimensions of the Israeli Mediterranean-Dead Sea Canal Project" in Abdel Majid Farid and Hussein Sirriyeh, eds., Israel and Arab Water, (London, Ithaca Press for the Arab Research Centre, 1985), p. 47.

e/ See Thomas Stauffer, "Arab water in Israeli calculations: the benefit of war and the cost of peace", in Farid and Sirriyeh, eds., op. cit., p. 76; map, p. 79; and Hamadneh, op. cit., p. 46.

f/ Salameh, Elias, "Effects of the Mediterranean-Dead Sea Canal project on Jordan's Ground-water resources", in Farid and Sirriyeh, eds., op. cit.

g/ See Hamadneh op. cit. pp. 46, 47 and 48.

h/ Mediterranean-Dead Sea Corporation, "Mediterranean-Dead Sea Project: outline and appraisal" (April 1982). 16 pp.

APPENDIX

Persons who met with the mission in Jordan

Ministry of Foreign Affairs

Mr. Taysir Toukan, Secretary-General

Mr. Abdullah R. Hamadneh, Research and Translation Department

Ministry of Energy and Natural Resources

Mr. Y. F. Nimry, Director-General

Ministry of Municipal and Rural and Environmental Affairs

Mr. Awad K. Tell, Under-Secretary

Ministry of Occupied Territory Affairs

Mr. Ahmad Katnani, Under-Secretary

Arab Potash Company

Mr. W. N. Stanley, Technical Manager

Jordan Valley Authority

Mr. M. Beni Hani, Acting Director-General

Mr. Suhail Wahsheh, Project Manager

Permanent Mission of the Hashemite Kingdom of Jordan to the United Nations

Mr. Farouk A. Kasrawi, Minister Plenipotentiary

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