IRAN-UNITED STATES CLAIMS TRIBUNAL

دیوان داوری دعاوی ایران - ایالات متحده

DUPLICATE ORIGINAL

«نسخه برابر اصل»

CASE NO. 97
CHAMBER TWO
AWARD NO. 232-97-2

RICHARD D. HARZA,
JOHN A. SCOVILLE,
GEORGE E. PABICH,
as Trustees,
Claimants,

and

THE ISLAMIC REPUBLIC OF IRAN,
KHUZESTAN WATER AND POWER AUTHORITY,
SEA-MAN-PACK COMPANY, LTD.,
S.G. SERVICES COMPANY,
Respondents

IRAN UNITED STATES CLAIMS TRIBUNAL
دادگاه داوری دعاوی ایران ـ ایالات متحده
FILED - ثبت شد
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No. 97 شماره

AWARD

Appearances:

For Claimant:

Mr. Jerry D. Anker
Mr. Mark T. Drooks
Wald, Harkrader and Ross, Attorneys
Mr. Richard D. Harza
Mr. Walter P. Leber
Mr. Jan A. Veltrop
Mr. Leonard E. Zak
Mr. Sean Hastings
Mr. Richard Acker
Mr. Jacob van der Wiel
Mr. Edward W. Eckford
Mr. Wolfgang Pircher
Mr. A.A. Mathews
Mr. Parviz Nabavi

For Respondents:

Dr. E.S. Nowbari,

Spokesman
Mr. S. Mohammadi,
Legal Advisor to the Agent of the Islamic Republic of Iran
Mr. E.S. Bakhshi,
Attorney for Khuzestan Water and Power Authority
Mr. R. Fatemi
Mr. B. Jazaieri
Mr. H. Jalali
Mr. M. Rakei
Mr. H. Raissi
Mr. A. Haghipour
Mr. H. Farnan
Mr. B. Amini,
Representatives of Khuzestan Water and Power Authority
Mr. H. Mozaffar
Dr. J. Niaki,
Representative of the Agent of the Islamic Republic of Iran
Mr. M. Dorcheizadeh
Mr. R. Nourizadeh,
Legal Advisors
Mr. A. Kousheshi,
Assistant to the Legal Advisor
Mr. H. Sheikholeslami
Dr. A. Frasiabi,
Representative of Social Security

Also Present:

Mr. S. Thouvenot
Mr. J. Kerisel,
Experts Appointed by the Tribunal
Mr. John Crook,
Agent of the United States of America
Mr. Daniel M. Price,
Deputy Agent of the United States of America
Mr. M. Glanz,
Advisor to the Agent of the United States of America

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I. THE PROCEEDINGS

1. On 17 November 1981, the Claimants, acting as assignees and trustees for all nationals of the United States owning stock of Harza Engineering Company International (hereinafter referred to as "Harza International"), a Liberian Company, filed a Statement of Claim against the Islamic Republic of Iran, said to include the Government of Iran, its Ministry of Energy, the Khuzestan Water and Power Authority (hereinafter referred to as "KWPA"), Sea-Man-Pack Co., Ltd. and S.G. Services Co. The total of the amounts claimed was U.S.$ 12,087,406.

2. All Respondents except S.G. Services Co. filed Statements of Defense. The Ministry of Energy and KWPA in a joint Statement of Defense filed on 17 May 1982 submitted counterclaims totalling U.S.$ 294,382,608.

3. By Interlocutory Award No. ITL 14-97-2 (17 February 1983) the Tribunal appointed three experts to examine various technical questions set forth in that Award. These experts were: Mr. Stéphane Thouvenot of Paris, France; Mr. Jean Kerisel of Paris, France; and Mr. Elson L. De S. Pinto of Curitiba, Brazil. After consultations with the Parties in The Hague, review of written documents filed in the Case or submitted to the experts by the Parties, a visit by Mr. Thouvenot to the headquarters of the Claimants in Chicago, Illinois, and receipt of comments by the Parties on proposed reports by the experts, the three experts filed their reports in February and March 1984.

4. A Hearing was held on 14, 15, and 16 October 1985, in which Mr. Thouvenot and Mr. Kerisel participated.

II. FACTS

5. The claims and counterclaims in this Case all arise out of a contractual relationship between Harza International and KWPA. The object of this relationship was the employment of Harza International as the consulting engineer on two groups of projects in the province of Khuzestan, one on the Karun River and the other on the Marun River. There were two projects on the Karun River: a 200 meter high dam with a 1,000 megawatt powerhouse and related facilities (hereinafter referred to as the Karun Dam) and a large irrigation project lower on the river (hereinafter known as the Gotvand Irrigation Project). There were four projects on the Marun River: a storage dam (hereinafter called the Marun Dam) and three irrigation projects (hereinafter called the Behbehan, Jaezan and Khalafabad Irrigation Projects). Harza International performed work on both groups of projects. The two projects on the Karun River were, in fact, constructed, but none of the projects on the Marun River proceeded beyond the planning stage.

6. The contractual documents on which the relationship between the Parties and the claims in this case are based are: (1) a contract dated 30 September 1965 (hereinafter referred to as the Contract) between the Iranian Ministry of Power and Harza International (KWPA was delegated to carry out the contract instead of the Ministry); (2) an amendment to that contract dated 4 October 1971 (hereinafter referred to as the 1971 Amendment) between KWPA and Harza International; (3) a Proces Verbal, signed by KWPA and Harza International in February 1978; and (4) an Addendum to the Proces Verbal, signed by the same two Parties earlier in December 1977.

7. The Contract covered all of the projects involved in this Case and remained in force throughout the work on the projects except to the extent modified by the later

contractual documents. It set forth the scope of work for each of several stages in which the work was to be divided. Phase I involved preparation of a feasibility report to provide a basis for KWPA to determine which projects to construct, their location and the sequence of their construction. Phase II consisted of the preparation of contract documents necessary for international tendering. Phase III-A consisted of assistance and advice to KWPA during tendering. Phase III-B consisted of the preparation of detailed construction drawings. Phase III-C consisted of engineering services during construction, including responsibilities for supervising the work of the contractors. Under the Contract, work on each phase could not begin until KWPA authorized it, and KWPA was not obligated to retain the services of Harza International for any subsequent phase (Article 2).

8. Harza International's compensation under the Contract took the form of a lump sum fee for each of the different phases. The fee for Phase I was fixed, and the fees for the subsequent phases were established as varying percentages of the estimated construction cost of each project, as determined by the Phase I reports. The Contract (Article 7) provided for several possible fee adjustments for such matters as changes in the scope of projects, extension of the work beyond the annexed schedules, and changes in the estimated construction costs. Article 7 also provided for adjustment of compensation should taxes, duties or social insurance levies imposed on Harza International and its employees be either increased or decreased after the date of the Contract.

9. In the event Harza International failed to comply with its contractual obligations, KWPA was required by Article 13 to notify Harza International and give it time, not to exceed three months, to correct any faults. That Article further authorized KWPA to terminate the Contract on fifteen

days notice if the faults were not remedied at the end of the specified time and to deduct its damages from the final payment up to a maximum of 50 percent of the value of the services rendered by Harza International prior to the point of termination. KWPA was further authorized to terminate the contract at any time on two month's notice for any reason at all, in which event it would be obligated to pay the full amounts due under the Contract for all services rendered, plus expenses incurred. An additional termination provision was included in Article 17 dealing with force majeure, pursuant to which either Party could take the initative to terminate the Contract in the event force majeure conditions made continued performance impossible. Under that provision, KWPA would also be obligated to pay the full amounts due under the Contract for all services rendered, plus expenses incurred.

10. The 1971 Amendment noted that the decision had been taken, and contracts entered into, for the construction of the Karun Dam, that the scope of Harza International's work and the schedules had been modified and that renegotiation of Harza International's compensation was required by Article 7 of the 1965 Contract. All of those changes were reflected in the 1971 Amendment. New agreed amounts were established for estimated construction costs of the various projects, new percentages stipulated for the calculation of fees and a precise schedule set forth for payments of the remaining lump-sum fees. It should be noted that the scheduled lump-sum installment payments were all made and are not at issue in the present Case. More significant for present purposes were the other provisions of the Amendment, particularly Item 3 which established time limits for the work covered by the lump-sum fees (29 December 1974 for all Karun River projects and the Behbehan Irrigation Project and 30 November 1977 for the Marun Dam) and provided that if those time limits were exceeded "for reasons beyond the control" of Harza International, then compensation for any

further work that KWPA authorizes ". . . shall be determined on the basis of man-months expended at such rates and expenses as agreed upon in this Amendment."

11. Item 5 of the 1971 Amendment defined man-months compensation as composed of three elements: direct salaries, overhead costs and fee, and direct costs. Under that provision, compensation, to be paid monthly, was to be calculated first by taking all actual salary payments to all of Harza International's personnel for time directly engaged in the work and adding them to 125 percent of that amount to cover overhead and fees and then by adding to that total "direct costs". Item 5 defines this latter term as follows:

> Costs which are directly applicable to the work such as transportation and subsistence expenses on travel in the interest of the work, long distance telephone, telex and cable expenses, reproductions, customs duties and taxes including income taxes in Iran. An addition of 10% will be made to cover handling and financing costs.

12. Other relevant provisions of the 1971 Amendment specified that the foreign exchange rate would be the official rate published by Bank Markazi on the date payment is due, required that all sums due to Harza International be paid within thirty days of the due date and provided for payment of interest ". . . at the prevailing rate of the Industrial Credit Bank of the Plan Organization".

13. In the years following the conclusion of the 1971 Amendment, Harza International submitted numerous invoices based upon the man-month formula set forth in that Amendment. Those invoices covered all work on the Karun Dam subsequent to 29 December 1974, certain work on the Gotvand Irrigation Project outside the scope of work in the 1971 Amendment, including all of Phase III-C of that Project, certain work on the Marun Dam outside the scope of work in

the 1971 Amendment, and certain work on the Behbehan Irrigation Project outside the scope of work in the 1971 Amendment.

14. KWPA apparently encountered considerable difficulty in processing these invoices. Certain claimed amounts eventually were approved and objections were raised to others for various reasons, such as unauthorized increases in salaries and inadequate documentation of travel expenses, but no invoice was ever finally settled. Payments on account were made from time to time, but the amounts paid lagged further and further behind the amounts billed as the years passed. In an effort to resolve these problems, Harza International and KWPA negotiated during 1977 a Proces Verbal and subsequently an Addendum to the Proces Verbal. Only after the Addendum was signed in December 1977 was the Proces Verbal signed in February 1978.

15. The Proces Verbal and the Addendum provided, inter alia, new invoicing requirements, detailed rules for salary increases and travel expenses, new procedures for importation of goods to minimize customs duties, simplified charges for the costs of offices and, most importantly, new obligations for the processing of invoices. KWPA agreed to pay within 60 days the full amounts of all invoices covering the period through May 1976. Harza International agreed to revise all its invoices subsequent to May 1976 to conform to the new provisions of the Proces Verbal and the Addendum, and KWPA agreed to process them expeditiously. In particular, KWPA agreed to review immediately all invoices for the period through May 1977 and to settle all those accounts within 60 days. With respect to subsequent invoices, KWPA agreed to pay 80 percent of the invoiced amount within 10 days of the submission of the invoice and to pay the balance or give reasons for non-payment within one month of the submission of the invoice. The Proces Verbal also provided that the final settlement of accounts (reconciliation of invoices

with payments on account) shall be effected within one year after the completion date of Harza International's services. The Addendum stated that all outstanding bank guarantees securing advance payments would be released by KWPA as the advances are deducted from payments to Harza International or when the work covered by the guarantee is completed. With respect to Iranian taxes, the Addendum said that the subject ". . . has been deferred for discussion prior to the end of Shahrivar 2536."

16. Harza International revised its post May 1976 invoices, but the processing of invoices and payments by KWPA in accordance with the Proces Verbal and the Addendum did not occur in 1978 or at any time thereafter. In late 1978 the Iranian Revolution and related strikes began to affect work on the projects in Khuzestan Province. Harza International's expatriate staff was removed from the Karun Dam in late December 1978 and from the Gotvand Irrigation Project in February 1979. Thereafter Harza International's work on site in Iran was carried out only by Iranian staff and occasional visits by expatriates. Finally, by letter dated 14 July 1980, Harza International notified KWPA that it had terminated its contract "for reasons of material breach of contract and force majeure . . ." and submitted a "final statement of account" in the total amount of U.S. $12,068,032. That amount was broken down into unpaid man-month charges ($8,086,154), additional costs ($779,874) and interest on the late payments through 30 June 1980 ($3,202,004). With an increase to U.S. $12,396,112 for a recalculation of interest and minor subsequent adjustments, that final statement, plus post 30 June 1980 interest and costs, constitutes the Claimants' claims in this Case.

17. Apart from the above stated facts concerning the contractual documents, the invoices and the termination of the contract, certain other facts are relevant, particularly for consideration of the counterclaims. These relate to certain

delays encountered in the construction of the Karun Dam and certain mishaps encountered in construction of both the Karun Dam and the Gotvand Irrigation Project.

18. The construction of the Karun Dam was completed more than two years behind the original schedule. Harza International points to a number of reasons contributing to this delay which were clearly not within its control, but KWPA asserts that the most important reason was the late discovery of geological problems in the right abutment of the dam and that the delay in that discovery was the fault of Harza International. The relevant facts covering this counterclaim are discussed in Section V of this Award as are other facts relevant only to the counterclaims.

III. JURISDICTION

19. The Claimants are three of the owners of Harza International, a closely-held corporation. To prove their right to bring this claim under the Claims Settlement Declaration, the Claimants have submitted a certificate of incorporation of Harza International from the Ministry of Foreign Affairs of Liberia, an affidavit from the corporate secretary of Harza International, and copies of passports and other relevant documents. In his affidavit, the corporate secretary has attested to the numbers of shares outstanding on 30 June 1980 and 19 January 1981 and has annexed a list of the 113 United States nationals who owned shares on 30 June 1980 stating the numbers of shares owned by each on that date and on 19 January 1981. The corporate secretary also attested to the assignment between July and October 1981 of all claims by these 113 persons to the Claimants, as trustees.

20. From the evidence submitted, the Tribunal is satisfied: (1) that the Claimants were nationals of the United States during the period from 30 June 1980, the date the Claimant

asserts its claims arose, until 19 January 1981, the date the Claims Settlement Declaration entered into force; (2) that Harza International was during that period a corporation under the laws of Liberia; (3) that Harza International was owned by nationals of the United States to the extent of 97.44 percent (113 persons) on 30 June 1980 and 97.34 percent (110 persons) on 19 January 1981; and (4) that the claims of all the United States nationals who were owners of Harza International during part or all of that period have been assigned to the Claimants as trustees.

21. The Claimants are bringing claims they and their assignees own indirectly through their ownership of stock within the meaning of Article VII, paragraph 2 of the Claims Settlement Declaration. It is clear that Harza International, as a Liberian corporation, cannot itself bring a claim before this Tribunal. It also seems clear that United States nationals had ownership interests in Harza International at the time the claim arose that were sufficient to control the corporation. The Tribunal has held in numerous cases that indirect claims can be brought in such cases through ownership and control of foreign corporations. R.N. Pomeroy et al. and Government of the Islamic Republic of Iran, Award No. 50-40-3, p. 12 (8 June 1983) (Liberian corporation); American Int'l Group, Inc. et al and Islamic Republic of Iran et al., Award No. 93-2-3, pp. 7-8 (19 Dec. 1983) (Swiss corporation); Dames & Moore and Islamic Republic of Iran et al., Award No. 97-54-3, p. 11 (20 Dec. 1983) (Venezuelan corporation). Therefore, the United States nationals who owned Harza International at the relevant period have standing to bring to the Tribunal these indirectly-owned claims.

22. While the assignment of claims by some United States shareholders to other United States shareholders has apparently not yet been before the Tribunal in any other decided case, the Tribunal sees no basis in the Claims

Settlement Declaration to reject such assignment. Article VII, paragraph 2 requires continuity of Claimants' nationality, not continuity of claimants' identity, and it requires such continuity ". . . from the date on which the claim arose to the date on which this agreement enters into force . . .", whereas the assignments in this Case occurred subsequent to 19 January 1981. Likewise, the Tribunal does not interpret Article III, paragraph 3 of the Claims Settlement Declaration as prohibiting assignments of claims, as the Respondents contend. That paragraph provides:

> Claims of nationals of the United States and Iran that are within the scope of this Agreement shall be presented to the Tribunal either by claimants themselves or, in the case of claims of less than $250,000, by the Government of such national.

Claimants are those who own claims, not necessarily the original owners. In the context of the other administrative provisions of Article III and in view of the provisions of Article VII, paragraph 2 on continuity of nationality, that provision seems directed solely at the administrative question of whether one of the two Governments or the claimants themselves shall present claims to the Tribunal, not to the question of whether an assignee may be a claimant.

23. At the Hearing, Respondent KWPA raised for the first time the defense that certain of the claims had arisen prior to 30 June 1980 and that the Tribunal had no jurisdiction over those claims because the Claimants' proof of U.S. nationality covered only the period from 30 June 1980 to 19 January 1981. The Claimants promptly offered testimony with respect to nationality during the preceding years, but the Tribunal refused it as unnecessary. As discussed in Section IV(A) below, the Tribunal considers the claims in this Case to have arisen as a result of non-payment of the Final Statement of Account, which was submitted in July 1980.

24. There remains the question, which is not entirely one of jurisdiction, of whether a claim that is brought by shareholders of an ineligible corporation as an indirect claim under Article VII, paragraph 2 can or should justify award of 100 percent of the monies found owing to the corporation or only that percentage of these monies equivalent to the percentage of their ownership interest.

25. In prior decisions by the Tribunal awarding damages for indirect claims, the ineligible corporation generally was wholly owned by the American claimants. In Dames and Moore and Islamic Republic of Iran et al., Award No. 97-54-3 (20 Dec. 1983), the record ownership of the Claimant was only ninety percent, but the Award indicates that the other ten percent was held by two nominees; thus the Claimant was the beneficial owner of one hundred percent of the stock of the ineligible corporation in that case, and the Tribunal awarded one hundred percent of the claims it found valid. In the present case, however, the 2.66 percent of Harza International not owned by the Claimants or their assignees on 19 January 1981 was evidently beneficially owned by persons who were not nationals of the United States.

26. The Claims Settlement Declaration contains several provisions relevant to this question. Article II, paragraph 1 provides that the Tribunal is established, inter alia, ". . . for the purpose of deciding claims of nationals of the United States against Iran . . . ". Article VII, paragraph 1 defines the term "national" of the United States as meaning a natural person who is a citizen of the United States and a corporation or other legal entity organized under the laws of the United States if owned fifty percent or more by natural persons who are citizens of the United States. Thus, in the present case, the Claimants are

nationals of the United States and Harza International is not a national of the United States. If the Declaration stopped there, claims based on contracts between Harza International and the Iranian Ministry of Energy and KWPA could not be brought before this Tribunal. The first sentence of Article VII, paragraph 2, however, provides:

> "Claims of nationals" of Iran or the United States, as the case may be, means claims owned continuously, from the date on which the claim arose to the date on which this Agreement enters into force, by nationals of that state, including claims that are owned indirectly by such nationals through ownership of capital stock or other proprietary interests in juridical persons, provided that the ownership interests of such nationals, collectively, were sufficient at the time the claim arose to control the corporation or other entity, and provided, further, that the corporation or other entity is not itself entitled to bring a claim under the terms of this Agreement.

27. The arguments in favor of the view that Article VII, paragraph 2 provides jurisdiction over the total claims of an ineligible (non U.S. national) corporation regardless of the percentage of ownership represented by the Claimants before this Tribunal may be summarized as follows:

a. The above quoted text of the Article indicates that the "claims" it refers to are the existing claims of the ineligible corporation, as it describes them as claims "owned indirectly" through ownership of the corporation. Separate claims of shareholders would be owned directly by those shareholders. Moreover, there is nothing in the Declaration or its context to suggest that it created new claims by shareholders; it merely conferred standing upon them to present the claims of the corporation to this Tribunal.

b. Logically it would be difficult to imagine a claim based on a contract to which the corporation, but not the shareholder, was a party that was different from the claim of the corporation.

c. The requirement in Article VII, paragraph 2 that nationals of the United States, at the time the claim arose, had sufficient ownership interests to control the corporation suggests that they can therefore act on behalf of the corporation.

d. As successful Claimants under Article VII, paragraph 2 would be recovering damages pursuant to a claim that belongs to the corporation, one cannot exclude the possibility that either the corporation or the other shareholders would bring legal proceedings against those Claimants in national courts to compel sharing of the amounts recovered. In such an event, award by the Tribunal of less than 100 percent of the amounts due the corporation could result in only partial compensation of the Claimants.

e. Considerations of economy and justice weigh in favor of litigating a claim of a corporation, which is essentially indivisible, in a single proceeding, rather than encouraging or compelling repetitive, if not duplicative, proceedings in both this Tribunal and other forums.

28. The arguments against that view and in favor of the view that Article VII, paragraph 2 provides jurisdiction over the claims of an ineligible (non U.S. national) corporation only to the extent that they were owned indirectly by U.S. nationals through their ownership interests in the corporation during the period from the date the claims arose until 19 January 1981 may be summarized as follows:

a. Article VII, paragraph 2 is ambiguous. While it makes clear that the indirect claims over which the Tribunal is given jurisdiction are claims of the ineligible corporation owned indirectly by the Claimants, it does not make clear whether these claims are the corporation's total claims for recovery of 100 percent of any amounts owed to the corporation or only the corporation's claims for the U.S. national Claimants' ownership percentage.

b. As the Article in context is ambiguous and as it constitutes an exception to the normal rule of international law that shareholders may not bring the claims of the corporation (as opposed to claims relating to their ownership rights), it should be construed narrowly. See Article 31(3)(c) of the Vienna Convention on the Law of Treaties.

c. Article VII, paragraph 2 contains an explicit proviso that indirect claims can be brought to the Tribunal only if the corporation is not itself entitled to bring a claim to the Tribunal. To interpret that Article as permitting U.S. nationals who owned less than 100 percent of the corporation to bring indirect claims for 100 percent of the claim of the corporation would be to circumvent that proviso by permitting the corporation, in effect if not in name, to bring its claim to the Tribunal.

d. The Claimants, not the corporation, will be parties to any award. Any payment pursuant to an award would be to the Claimants, not to the corporation, and the Tribunal could not be certain that such Claimants would share their recovery with the corporation or the other shareholders. If the Claimants did not share the recovery, an award of 100 percent of the amounts due the corporation would result in unjust enrichment of the Claimants.

29. The Tribunal notes that the Declaration does not require that all of the U.S. national shareholders in an ineligible corporation join together to bring the claims of the corporation. While Article VII, paragraph 2 requires that the ownership interests of U.S. national owners must be sufficient collectively to control the corporation at the time the claim arose, it does not require them to bring a collective claim. The Tribunal is aware of at least two claims pending before different Chambers in each of which one of the two owners of an ineligible corporation has separately brought the same claims of that corporation pursuant to Article VII, paragraph 2, although each apparently seeks recovery only of his ownership percentage of those claims. Hoshang Mostofizadeh and Government of Islamic Republic of Iran et al., Case No. 278, Chamber Two; B.J. Hughes, Inc. and Government of Islamic Repubic of Iran, Case No. 141, Chamber One.

30. The Tribunal is aware of the potential questions raised by the fact that, in these indirect claim cases, the corporation whose claim is being litigated is not, itself, a party to the proceedings. Should the corporation bring its own claim before the courts of a third country, could such an action be defeated or recovery be limited on the basis of the award by this Tribunal and the provisions of the Claims Settlement Declaration? Article IV, paragraph 1 states that all awards of the Tribunal shall be final and binding, and Article VII, paragraph 2 states that claims referred to the Tribunal are excluded from the jurisdiction of the courts of Iran or the United States ". . . or of any other court." Would these provisions be effective in preventing double recovery or any further recovery at all against the Respondents? When the claimants before this Tribunal own one hundred percent of the corporation, these problems are, at most, merely theoretical, but when the claimants are only partial owners, one cannot exclude the possibility of separate legal actions in third countries by the corporation

itself in the event that the Tribunal awards only that percentage of the total claim represented by U.S. national claimants. In this connection, it should be noted that the requirement that U.S. nationals control the corporation in Article VII, paragraph 2 applies only "at the time the claim arose", so it is conceivable that the corporation could subsequently have become controlled by persons of other nationalities.

31. In the present Case, the Claimants have not placed in evidence the trust agreement pursuant to which the assignments of claims were made to the Claimants, although the Claimants' attorney asserted at the Hearing that the Claimants were obligated by that agreement to pay any amounts recovered under the claim to Harza International.

32. On balance, the Tribunal believes that, at least where the Claimants have not proved that they are legally obligated to pay over any recovery they may receive to the corporation, the most prudent decision the Tribunal can take is that, while agreeing that Article VII, paragraph 2 gives the Tribunal jurisdiction over the claims of Harza International which the Claimants own indirectly, their recovery should be limited to the percentage of Harza International owned by U.S. nationals during the period from the date the claims arose until 19 January 1981 and owned by or assigned to the Claimants for purposes of this proceeding, that is, 97.34 percent in this Case. Accord Blount Brothers Corp. and Government of the Islamic Republic of Iran, Award No. 215-52-1 (6 Mar. 1986), pp. 10-12. The fact that the Tribunal cannot compel sharing of awarded amounts with the corporation or the other shareholders is the decisive consideration compelling this conclusion.

33. Questions concerning jurisdiction over the counterclaims by KWPA are dealt with as part of the consideration of those counterclaims in Section V below.

IV. THE CLAIMS

A. General

34. The Claimants bring two types of claims in this case. First, they claim against KWPA for amounts allegedly owed to Harza International on the above-described contracts between Harza International and KWPA. Second, they claim against the Islamic Republic of Iran based upon the alleged expropriation or disappearance of the household goods and personal effects of four employees of Harza International. This second type of claim can be disposed of briefly, for the Claimants have presented too little evidence to support it. In essence, the Claimants have shown that Harza International paid four of its employees a total of U.S. $19,373.83 as partial reimbursement for the loss of their property in Iran. The evidence indicates that the goods belonging to two of the employees were left with shipping companies, Sea-Man-Pak in one case and S.G. Services in the other, and that the goods of the other two employees were left in the offices of an unidentified consulting engineering firm in Tehran and could not be removed allegedly because the room had been locked by revolutionary guards. No evidence was presented to show that either of the shipping companies was controlled by the Government of Iran within the meaning of Article VII, paragraph 3 of the Claims Settlement Declaration, that revolutionary guards had, in fact, locked the office in question, or that the Government was in any way responsible for the disappearance of the goods. Therefore, these claims for the amounts Harza International paid its four employees must be dismissed for lack of proof.

35. Turning now to the contract claims, there has been from the beginning an ambiguity in Harza International's concept as to whether its claims were claims for damages for breach of contract, or a settlement of accounts required by the

force majeure clause (Article 17) of the Contract. In its letter to KWPA dated 14 July 1980, Harza International said that it had terminated the contractual relationship

> for reasons of material breach of contract and force majeure in that you have failed and refused to make payments owing . . . in accordance with the contract terms, and that exceptional causes beyond our reasonable control which could not have been foreseen or reasonably provided against have made further execution of the Contract impossible.

With that letter, Harza International enclosed its Final Statement of Account listing the amounts it considered were due to it. These amounts were broken down into totals of unpaid invoices for each project based on the man-months formula (Item 5) in the 1971 Amendment, certain additional costs billed separately and interest on late payments through 30 June 1980. Harza International did not include in that Final Statement of Account, and the Claimants have not presented to the Tribunal, any claim for lost profits or other damages for breach of contract. The Final Statement of Account appears to be the final "invoice" required by the force majeure provision of the Contract, which provides as follows:

> The ENGINEER shall not be liable for any loss or damage due to delay or failure in performing his obligation under this contract resulting from exceptional causes beyond Engineers reasonable control including but not limited to:
>
> Acts of God, strikes, embargos, war, acts or omission of civil or military authority as reasonable foresight and ability on the part of Engineer could not foresee or reasonably provide against. In case any of the above causes make the execution of this Contract impossible, either of the parties to this Contract may ask the other party for termination of this Contract. In such a case, within one (1) month after formal notice of termination of the Contract, the ENGINEER shall submit an invoice, indicating the sums to be paid to him by the MINISTRY, and within one (1) month after receipt of the above mentioned invoice, the MINISTRY shall check it and pay to the ENGINEER the sums which, under Article 13, subarticle 2,

> the ENGINEER is entitled to receive, against receipt of a statement indicating liquidation and settlement of all accounts.

36. As noted in section III above, the Claimants submitted their proof of nationality to cover the period from 30 June 1980 to 19 January 1981, thus implying that they considered their claim not to have arisen before 30 June 1980. That would be more consistent with the view that the claim is one for non-payment of the final invoice pursuant to a termination of force majeure than with the view that the claim is one for breach of contract for late payment or non-payment of invoices during the late 1970s.

37. The Claimants have introduced evidence of the difficulties Harza International and its expatriate employees faced in Iran beginning in late 1978 relating both to living and working conditions and to non-payment of invoices. This evidence was adequate for the Tribunal to find that Harza International's termination of the Contract in July 1980 on the basis of the force majeure clause in the Contract (Article 17) was proper.

38. In the light of the above considerations, the Tribunal considers the claims in this Case to have arisen under Article 17 of the Contract for non-payment of the Final Statement of Account submitted with the notice of termination dated 14 July 1980.

39. In this connection, the question arises whether the Claimants can be permitted to add to their claims in this proceeding the total amount of certain invoices for services performed in Iran on the Karun Dam from December 1979 through April 1980, which invoices were inadvertently omitted from the Final Statement of Account. These invoices total 11,593,509 rials. While a claim for payment for services rendered in 1979 and 1980 under a contract was an outstanding claim whether invoiced or not, and therefore was

outstanding on 19 January 1981 as required by Article II, paragraph 1 of the Claims Settlement Declaration, whether it may be added later to an invoice which was part of a contractually authorized force majeure termination depends on the terms of the Contract. Certainly if KWPA and Harza International had finally settled their accounts pursuant to Article 17 of the Contract, Harza International could not later have raised a claim for overlooked invoices. In the present case, however, there has been no such settlement, and the Tribunal does not interpret Article 17 of the Contract as precluding Harza International from correcting such an error prior to settlement.

40. KWPA also has argued that it should have no liability with respect to certain missing invoices, that is, invoices the originals of which it either did not receive during the life of the Contract or cannot find. The Claimants argue that all were submitted in the normal course of business and that KWPA's inability to find certain original invoices is of no legal significance. The Tribunal agrees that this question is of no significance, because, in any event, all of these invoiced amounts (with the exception of the December 1979 through April 1980 invoices discussed above) were included in the Final Statement of Account and the schedules annexed thereto in July 1980.

B. Description of the Contract Claims

41. The Final Statement of Account set forth the claims of Harza International in three general categories: (1) "Item 5 Services" (that is, amounts allegedly due on man-month invoices pursuant to Item 5 of the 1971 Amendment), listed by project; (2) additional costs, listed separately; and (3) interest on late payments, calculated at 12 percent per year through 30 June 1980. In the course of this arbitration, certain errors were discovered in the Final Statement of Accounts. In 1982, Harza International recalculated the

interest amount claimed through 30 June 1980, resulting in an increase in that amount by U.S. $328,080. Subsequently, during the work of the Tribunal expert, Mr. Thouvenot, a number of other errors were discovered, some in favor of Harza International and others in favor of KWPA. In general, these corrections are not the subject of dispute except for a few payments totalling 21,517,133 rials allegedly made by KWPA to Harza International or on its behalf to others. The Claimants have accepted three of these payments, one for 1,265,000 rials as tax withholding, one for 85,572 rials as a payment to Harza International, and one for 10,073 rials as a tax payment. For the remainder, KWPA has not proved that the payments were of a type that should be credited to it under the Contract.

42. Thus, the various elements of the contract claims[1] in this case, each of which must be considered by the Tribunal, are the following:

1. Unpaid Man-Month Invoices:

a.	Karun Dam	U.S. $3,751,176
b.	Gotvand Irrigation Project (Phase III-C)	U.S. $3,860,628
c.	Gotvand Irrigation Project (other phases)	U.S. $ 298,954
d.	Marun Dam	U.S. $ 31,340
e.	Behbehan Irrigation Project	U.S. $ 219,377

[1] Harza International converted all rial amounts to dollar amounts in its Final Statement of Account and identified the exchange rates used in schedules attached thereto. KWPA has not objected to those rates, and the Tribunal accepts them for this purpose.

2. Additional Costs:

a.	KWPA Training Program	U.S. $ 33,463
b.	Karun and Marun Dam Model Tests	U.S. $ 17,692
c.	Karun Turbine Inspection Services	U.S. $ 118,853
d.	Coopers & Lybrand Services	U.S. $ 51,386
e.	Social Insurance Premiums and 10 percent additional tax on salaries of expatriate employees	U.S. $ 354,827
f.	Additional Taxes on Lump-Sum Payments	U.S. $ 192,238
g.	Estimated Iran Tax on Payments Received from 21 March 1979-20 March 1980	U.S. $ 10,754

3. 12 Percent Interest on Late Payments through 30 June 1980 U.S. $3,530,084

Total U.S.$12,470,772

C. General Issues

1. Proces Verbal and Addendum -- Payment and Review Provisions

43. There are several issues that affect many invoices and therefore should be decided prior to considering individual elements of the contract claims described above. One of the most significant is the effect the Tribunal should give to the provisions in the Proces Verbal and the Addendum obligating KWPA to review and pay promptly Harza International's invoices. Those documents, as noted above, obligated KWPA to pay to Harza International within 60 days of the conclusion of the Proces Verbal on 2 February 1978

the full amounts of all invoices covering the period through May of 1976. While the Addendum (paragraph 7) reserved the subject of Iranian taxes for further discussion, all other possible objections to those pre-June 1976 invoices were, in the view of the Tribunal, waived by that payment obligation. The Claimants argue that, for similar reasons, KWPA's failure either to pay the post-May 1976 invoices or state reasons for non payment within the time periods established by the Proces Verbal and its Addendum makes its subsequent objections untimely. However, the Tribunal considers that this question need not be decided in view of its holdings below on the objections raised by KWPA.

2. Iranian Taxes

44. As noted above, the subject of Harza International's contractual rights to reimbursement by KWPA of certain Iranian taxes was not resolved by the Proces Verbal and its Addendum.[2] The Parties never resolved this question through negotiation, and it must now be resolved by the Tribunal. As the issue relates, in one way or another, to all of the projects and many of the invoices, the Tribunal will deal with it as a preliminary, general issue.

45. The Contract provided (Article 7) for compensation through lump-sum fees determined by percentages of estimated construction cost and stated the following with respect to taxes:

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[2]The Addendum, signed in December 1977, states that taxes were deferred for discussion "prior to the end of Shahrivar 2536." That month, however, corresponds to September 1977, i.e., three months before the Addendum was signed. Nonetheless, the express reference to deferral indicates that such was the intent of the Parties, irrespective of the date specified.

> The above compensation includes all taxes, duties and income taxes of the ENGINEER and his Iranian and foreign personnel employed for the execution of this Contract in Iran, and customs duties related to materials, equipment and plant purchased by the ENGINEER which are in effect at the date of signature of this Contract. Should any new taxes, duties or social insurance levies be imposed upon the ENGINEER and his employees (other than those in effect on the date of signature of this Contract) or should the rates of any taxes, customs and other duties, etc. applicable to the ENGINEER or his employees be increased or decreased after the aforesaid date, the compensation to the ENGINEER shall be adjusted accordingly.

46. The 1971 Amendment did not change the above quoted provision of the Contract insofar as lump-sum payments were concerned, but it dealt with taxes in a different way in defining man-months compensation. Item 5 of the 1971 Amendment said that direct costs should be reimbursed by KWPA and those costs were defined as "[C]osts which are directly applicable to the work such as . . . customs duties and taxes including income taxes in Iran."

47. While these contractual provisions seem relatively free from ambiguity, their implementation in practice, particularly those concerning the man-months invoices, led to disagreements, as reflected in the Addendum to the Proces Verbal. The first tax problems that arose under the provisions of the Contract resulted from the fact that the Iranian tax authorities construed the 1971 Amendment as a new contract, thereby making Harza International liable from that date to higher income tax rates which had been enacted in 1967 but which did not apply to contracts signed prior to the enactment of the tax law. Harza International found itself reassessed for the years following the 1971 Amendment in the amount of 22,729,834 rials, which it paid. Harza International also became subject to a slightly higher withholding rate on the remaining lump-sum payments, which amounted to a total of 842,218 rials in additional

withholdings. Of these amounts, KWPA reimbursed Harza International in December 1974 to the extent of 10,000,000 rials. The remainder, converted to U.S. $192,238 in the Final Statement of Account, is part of the claims in this Case. KWPA argues that the 1971 Amendment, by increasing the compensation to Harza International, took into account the increased taxes in 1967 and, therefore, that the requirements of Article 7 of the Contract had been met. No evidence of such an understanding has been introduced, however. To the contrary, the Claimants allege that neither Party anticipated the subsequent ruling of the Iranian tax authorities to the effect that the 1971 Amendment was a new contract and that KWPA encouraged Harza International to challenge it in court, which was done without success. The Tribunal also notes that KWPA reimbursed Harza International in December 1974 to the extent of 10,000,000 rials of these additional taxes. On the basis of these considerations, the Tribunal upholds Harza International's claim for reimbursement of these taxes in the amount of U.S. $192,238.

48. Two other new taxes were imposed subsequent to the conclusion of the Contract. These were social insurance premiums on expatriate employees, beginning in 1967, and a 10 percent surtax on expatriate employees' salaries, beginning in 1970. Both of these were reimbursed by KWPA until April 1976. Harza International claims for the unreimbursed invoices from April 1976 through December 1978 in the amounts of 18,136,104 rials for social insurance premiums and 6,914,666 rials for the surtaxes. The total is 25,050,770 rials, which is converted to U.S. $354,827 on the Final Statement of Account. Noting that Article 7 of the Contract explicitly requires reimbursement of Harza International for new taxes imposed upon its employees as well as those imposed directly upon it, the Tribunal upholds Harza International's claim for these social insurance premiums and surtaxes in the amount of U.S. $354,827.

49. Most of the man-month invoices, that is those pursuant to Item 5 of the 1971 Amendment, which form the bulk of Harza International's claims, contain amounts requested for reimbursement of the contractor's income tax, both the 5 percent which was withheld by KWPA and the additional payments made by Harza International to the tax authorities each year. These amounts total U.S. $947,493. KWPA argues that, at least as far as the Karun Dam Project is concerned, the man-month formula was not intended to cover the work charged to it and therefore that these tax reimbursement claims are not well founded. The question of the proper application of the man-month formula is dealt with below. In view of the clear wording of the definition of direct costs in Item 5 of the 1971 Amendment, the Tribunal holds that the 5 percent tax withholdings and the additional amounts paid by Harza International to the tax authorities as Iranian contractor's tax were valid claims by Harza International for any work for which it was entitled to compensation on the basis of the man-months formula in Item 5 of the 1971 Amendment.

50. Harza International included in the Final Statement of Account one further tax item, an amount of U.S. $10,754 to cover the estimated amount of Iranian contractor's tax on payments received during the Iranian tax year ending on 20 March 1980. At the Hearing, the Claimants acknowledged that this amount has not been assessed or paid. Accordingly, there is no basis for its recovery under either the Contract or the 1971 Amendment, and the Tribunal disallows this claim.

3. Salaries

51. KWPA has raised three objections to certain salaries included in various man-month invoices: (a) salaries of employees unknown to KWPA; (b) salaries that allegedly

should have been absorbed in overhead; and (c) salary increases for Iranian employees during 1977 and 1978 beyond the levels agreed to by KWPA. The first two objections can quickly be set aside, as KWPA has introduced no evidence to support them. The third objection, however, requires more detailed consideration.

52. The 1971 Amendment defined direct salaries, for which Harza International was to be compensated under the man-month formula, as "Actual Salary payments to all personnel, including officers, for time directly engaged on the work." Under that provision, salary increases were compensable without limitation. In the Proces Verbal, however, salary levels were subjected to controls. Paragraph 2(a)(2) provided:

> (2) At the beginning of the year 2535 [March 1976], the Organization Chart of the Engineer including classification of remuneration and personnel salaries as submitted by the Engineer and agreed by the client will be regarded as a basis for calculation of direct salaries.[3]

53. Paragraph 6, and an attached list of salaries established maximum salary increases for the years 2534 and 2535 and, in paragraph 6, stated:

> If under some circumstances the Consulting Engineer is required to increase the salary of some of his personnel more than the limits provided for in the above items for salary increase the Engineer must obtain prior consent of Executive body.

54. It is not totally clear from the text whether these provisions were intended to restrict salary increases

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[3]The agreed Organization Chart was annexed to the Addendum.

subsequent to the year 2535 (which ended on 20 March 1977), but the Tribunal believes it reasonable to conclude they had that effect in the light of the dealings of the Parties. It is clear that the Proces Verbal and its Addendum, which had been negotiated over a period of many months, were designed to overcome many of KWPA's difficulties with the man-month invoices, including difficulties with salary levels and increases. It appears that one of the benefits accorded to KWPA, in return for its agreeing to pay promptly the outstanding invoices, was the addition of a requirement of consent by KWPA to further salary increases. Nearly a year before the Proces Verbal was signed, Harza International proposed to KWPA that the Iranian employees salaries for the year 2536 be increased by 15 percent, and the Claimants allege that the Project Director agreed orally. The only evidence of that alleged agreement is an internal cable of Harza International. Later in that same year, Harza International granted further increases of 8 percent to 10 percent when many of the employees' contracts expired. On 30 November 1977, however, KWPA informed Harza International by letter that it approved only a 10 percent increase for all of the year 2536. For the following year, 2537, Harza International proposed increases that ranged up to 15 percent; these were subsequently approved in writing by KWPA, but only on the lower base of the salaries of 2535 increased merely by 10 percent for 2536, not by the actual increases. On the basis of this evidence, the Tribunal concludes that the Parties both understood that KWPA's written consent was required for salary increases, even though that put Harza International in the risky position of being forced in practice to grant inflation increases long before KWPA decided whether to approve them and thereby make them reimbursable. In this connection, the Tribunal notes that Harza International had been informed of KWPA's retroactive 10 percent limitation on increases for 2536 before the signature of the Proces Verbal, and yet

apparently made no effort to modify the Proces Verbal on that point.

55. With respect to the amount in issue as a result of unauthorized salary increases (including the effect of the 125 percent overhead multiplier), KWPA asserted that the amounts were U.S. $291,209 and 106,886,925 rials (together approximately U.S. $1.8 million), but no evidence to support those figures nor indication of how they were arrived at was ever supplied by KWPA. Mr. Thouvenot's report suggests that those amounts cited by KWPA may be the total salaries, not the increases to which KWPA had not agreed. At Mr. Thouvenot's request, the Claimants calculated the maximum amount subject to dispute (including the 125 percent multiplier) at 8,946,848 rials, which they converted to U.S. $126,697.85. KWPA did not respond further, and the Tribunal accepts that amount. The Tribunal holds that Harza International's claim for salary increases not approved by KWPA in the amount of U.S. $126,697.85 must be disallowed.

4. Travel Expenses

56. KWPA has alleged that Harza International's post-May 1976 invoices included unjustified charges for travel in the amounts of U.S. $155,591 and 19,965,250 rials. KWPA has not documented that allegation with evidence. During his visit to Harza's offices in Chicago, Mr. Thouvenot conducted a spot check of files. While he found that Harza International's invoices were accurately drafted, he stated that it was still disputed whether certain travels by Harza International's consultants were approved by KWPA. Based on that experience and his meetings with the Parties, Mr. Thouvenot expressed the view that only 10 to 15 percent of KWPA's objections concerning travel would be likely to be justified. The Claimants disagree and argue that it is unfair to sustain KWPA's objections even to that limited extent when KWPA has failed

to provide any evidence to support them, and the Claimants therefore have nothing they can rebut. The Tribunal agrees. Given Mr. Thouvenot's findings, KWPA has a burden of proof that it has not sustained, and the Tribunal does not believe it appropriate to relieve it of that burden by using an arbitrary percentage which is itself derived from quite limited investigation. KWPA's files should contain all authorizations for travel by or on behalf of Harza International. KWPA's failure to document even a few cases of unauthorized travel must cause its objection to fail.

5. Miscellaneous

57. KWPA objected to Harza International's inclusion of certain items of cost in its man-month invoices as direct costs. KWPA refers to the cost of Iranian work permits for Harza International's expatriate employees, the cost of maintenance of advance payment bank guarantees, and certain office costs. The Tribunal does not find any of these objections meritorious. The cost of work permits for employees engaged solely on the project is clearly a direct cost within the meaning of Item 5 of the 1971 Amendment. The Proces Verbal resolved the question of office costs, and Harza International revised its invoices in accordance with it. The cost of maintaining bank guarantees against advance payments during a time when virtually all compensation was being paid on the basis of Item 5 is also a direct cost under that provision. Mr. Thouvenot expressed the view in his report that the cost of bank guarantees was not a direct cost, but he clarified his views at the Hearing by saying that they would be direct costs if attributable to man-month, rather than lump-sum, compensation. The Tribunal so finds.

D. The Item 5 Invoices

1. The Karun Dam

58. After the various corrections and adjustments referred to above, Harza International's claim for unpaid amounts allegedly due on man-month (Item 5 of the 1971 Amendment) invoices for the Karun Dam Project total U.S. $3,751,176. That result is reached by adding Harza International's invoices in dollars, which totaled U.S. $6,363,966.34, to the dollar equivalent of its invoices in rials, which totaled U.S. $6,443,585.90 (455,600,195 rials) and then subtracting payments by KWPA in dollars, which totalled U.S. $725,851.80, and the dollar equivalent of its payments in rials, which totaled U.S. $8,330,524 (589,018,032 rials). These invoices cover all of Harza International's work on the Karun Dam after 29 December 1974, the date established in Item 3 of the 1971 Amendment as the applicable time limit for work covered by lump-sum compensation. Item 3 further provided:

> Should these established time limits be exceeded for reasons beyond the control of the ENGINEER, and the completion of the work is delayed, then . . . any portion of the work remaining may be carried out by the ENGINEER as per instructions of the AUTHORITY and the compensation shall be determined on the basis of man-months expended at such rates and expenses as agreed upon in this Amendment.

59. KWPA contends first that, when this agreement was concluded in 1971, the Parties expected that only relatively minor work would remain to be done on the Karun Dam Project after 29 December 1974. This was probably correct, although the Tribunal notes that large construction projects often encounter delays so that an element of risk of delay is inevitable. In any event, whatever the Parties' expectations, the contractual provision is clear.

60. KWPA's principal defense (and also the basis for one of its counterclaims) is that the delays in the Project were the fault of Harza International and therefore not "for reasons beyond the control of the ENGINEER" within the meaning of Item 3. KWPA argues that Harza International's pre-construction geological exploration was inadequate and resulted in a two-year delay in completion of the Project when certain geological problems in the right abutment of the dam were discovered only in 1972, after construction had begun. The Claimants deny that the exploration was inadequate and that the delay would have been any less had the geological problems been discovered earlier. The relevant Tribunal expert, Mr. Kerisel, stated the view that some additional boreholes in the right abutment would have been desirable during the preliminary investigations, and much evidence and argument was devoted to this issue, although largely in the context of KWPA's counterclaims.

61. With respect to Harza International's claim for unpaid man-month invoices on the Karun Dam, the Tribunal believes that KWPA's defense is largely irrelevant. Harza International began submitting monthly invoices on the Project pursuant to Item 5 of the 1971 Amendment beginning in January 1975 and continuing through April 1980. In response to these invoices, KWPA paid substantial amounts on account. In 1975, KWPA's project manager explicitly recognized in a letter to Harza International the propriety of man-month invoices on the Project. KWPA's stated objections to items in invoices were on specific and much narrower grounds. In late 1977 and early 1978, KWPA concluded the Proces Verbal and its Addendum in which it undertook to pay and review these invoices promptly. The evidence indicates that KWPA raised the defense of inadequate preliminary exploration for the first time during the present proceedings. The credibility of KWPA's defense is impeached by its prior conduct. Moreover, it would be grossly unfair to permit an employer, like KWPA, to induce an engineer to work for five

years on the promise of compensation, supported by periodic partial payments and reassurances and then, at the end, to deny that any compensation was due. Article 13 of the Contract provided a remedy for KWPA in the form of notice, termination and recovery of damages if Harza International failed to rectify defects in its work. Moreover, KWPA was free to terminate Harza International's services at any time. Under the Contract and the 1971 Amendment, if KWPA believed that Harza International's work on the Karun Dam after 29 December 1974 was not properly compensable under Item 5 of the 1971 Amendment, it had a duty to say so at that time. Accordingly, the Tribunal upholds Harza International's claim for unpaid invoices on the Karun Dam Project in the amount of U.S. $3,751,176.

2. The Gotvand Irrigation Project -- Phase III-C

62. The 1971 Amendment (Item 1) excluded from the scope of Harza International's work Phase III-C (engineering services during construction) of the Gotvand Irrigation Project. Later, KWPA changed that decision and, by letter dated 1 April 1974, authorized Harza International to perform the work under Phase III-C. There is no disagreement that such work was to be compensated on the man-month (Item 5) basis. The 1971 Amendment is clear on that point, and KWPA agreed explicitly in a letter dated 27 October 1974. While KWPA in the present proceeding alleges defects in the work of Harza International, those allegations are related to its counterclaims and do not constitute a defense to non-payment of invoices. As noted in the preceding subsection, KWPA's contractual remedies in the event of defects were set forth in Article 13 of the Contract. In the absence of notice to the engineer, an opportunity to correct defects and contract termination pursuant to that Article, work performed pursuant to the Contract and the 1971 Amendment must be compensated as required by the Contract and the 1971 Amendment. KWPA

recognized this fact on numerous occasions and most notably in the Proces Verbal and its Addendum. The Tribunal upholds Harza International's claim for unpaid invoices on Phase III-C of the Gotvand Irrigation Project in the amount of U.S. $3,860,628.

3. The Gotvand Irrigation Project -- Other Phases

63. The 1971 Amendment (Item 1) also excluded from the scope of work Harza International's work on Phase III-A (assistance during tendering) of the Gotvand Irrigation Project. Such work was later assigned to Harza International, as were a number of additional tasks, such as the expansion of the project to include third and fourth order irrigation canals in two of the Project's units, the addition of land to the project area, the inclusion of a sugar plantation and the design and other work related to a labor village. While KWPA now denies in general that Harza International performed any work on the Gotvand Irrigation Project, other than Phase III-C, that was beyond the scope of work in the Contract and the 1971 Amendment, this was not a position it took at any time prior to the present proceedings and is contrary to the position expressed by KWPA on a number of occasions during the course of the work. For reasons similar to those stated in the two preceding subsections, the Tribunal upholds Harza International's claim for unpaid invoices for additional work on phases other than III-C of the Gotvand Irrigation Project in the amount of U.S. $298,954.

4. The Marun Dam Project

64. The only invoices relating to this Project that were on the man-month (Item 5) basis were for changes in the bidding documents requested by KWPA in 1974 and 1975. Harza International made clear at the time that it considered those changes to be additional work to be compensated on a

man-month basis. There is no evidence that KWPA disagreed, and the vast majority of the invoices at issue were, in any event, prior to May 1976 and thus were covered by the payment obligation in the Proces Verbal and its Addendum. The Tribunal upholds Harza International's claim for unpaid invoices for work on the Marun Dam in the amount of U.S. $31,340.

5. The Behbehan Irrigation Project

65. The only invoices relating to this Project that were on the man-month (Item 5) basis were for services not within the scope of work, including the preparation of drawings for third and fourth order irrigation canals, the provision of architectural services for the village on the project and certain revisions in contract documents. The evidence does not show that KWPA objected to the application of the man-month compensation system to this work. KWPA made partial payments in response to those invoices (overpaying the rial invoices, but underpaying the dollar invoices). The Tribunal upholds Harza International's claim for unpaid invoices for work on the Behbehan Irrigation Project in the amount of U.S. $219,377.

E. Additional Costs

66. This section deals with four claims for reimbursement of costs not covered by the man-month (Item 5) invoices and stated separately on the Final Statement of Account.

1. KWPA Training Program

67. At issue here are 12 invoices issued by Harza International between 30 September 1974 and 31 December 1976 and seeking compensation for the training of certain KWPA personnel. KWPA made a partial payment in response to only one of these invoices and now objects to them on the grounds

of lack of authorization and use of the 125 percent overhead multiplier. The Proces Verbal (paragraph 2C) dealt with this question by requiring authorization for each item and ruling out the addition of overhead. Mr. Thouvenot stated the view that this agreement of the Parties should apply to invoices prior to 31 May 1976 as well as those afterward and required deduction from the claim of the amount attributable to overhead (U.S. $10,672.49). The Claimants, pointing to the Proces Verbal, say they disagree with respect to invoices prior to June 1976 but "do not intend to challenge this finding." In any event, the Tribunal doubts the relevance of the Proces Verbal to invoices that are not man-month (Item 5) invoices. The Tribunal accepts the deduction and upholds Harza International's claim for unpaid invoices for the KWPA training program only in the amount of U.S. $ 22,790.51.

2. Karun and Marun Dam Model Tests

68. At issue here is U.S. $17,692 in unpaid invoices issued in 1972 and 1974 with respect to model tests which, in total, cost U.S. $66,150. KWPA objected in 1977 to the fact that the cost of the tests exceeded by U.S. $3,150 the estimated cost on which it had based its approval. Article 6, paragraph 4 of the Contract provides that KWPA is to bear the cost of, inter alia, model tests. A letter from the Managing Director of KWPA dated 15 February 1968 dealing with these tests stated that Harza International was authorized to approve increases in cost over the contract amounts by a maximum of 5 percent. In light of those facts, the Tribunal does not believe it should deduct from the claim the 5 percent by which the costs exceeded the estimates in this case. Therefore, the Tribunal upholds Harza International's claim for unpaid invoices on model tests in the amount of U.S. $17,692.

3. Karun Turbine Inspection Services

69. At issue here are a long series of invoices issued between 30 June 1971 and 31 January 1975 in the total amount of U.S. $118,853. These represent the cost of a subcontract with Robert W. Hunt and Co. for the inspection of the turbines for the Karun Dam during their manufacture. It appears that KWPA objected to the first invoice relating to this subcontract. Harza International acknowledged that it had failed to obtain the prior authorization of KWPA for the subcontract but alleges that KWPA's assent was obtained subsequently during the negotiation of the 1971 Amendment. The evidence does not show, however, that approval was ever obtained in writing, and Article 6, paragraph 4 of the Contract requires a "written request" to authorize subcontracts. In view of that clear requirement of the Contract, the Tribunal rejects Harza International's claim for unpaid invoices for the Karun Turbine Inspection Services.

4. Coopers Lybrand Services

70. At issue here are (a) a balance due on amounts paid by Harza International to Coopers Lybrand for review of certain costs by the construction contractor of the Karun Dam and (b) the question whether Harza International is entitled to a 5 percent or a 10 percent service charge on the transaction. There is no dispute that these services were authorized, although KWPA denies that they were performed properly, but there is a dispute about the right to a service charge. The Claimants argue that these services were compensable as a direct cost under Item 5 of the 1971 Amendment. Alternatively, they contend that the arrangement could be considered a subcontract under Article 6, paragraph 4 of the Contract. If the former, Harza International would be entitled to a 10 percent fee; if the latter, 5 percent. KWPA argues that it negotiated directly with Coopers Lybrand, that Harza

International signed only "due to budgetary restrictions" and that any right to a service or handling charge was waived by paragraph 4(a)(iii) of the Proces Verbal. With respect to this latter point, the Tribunal notes that the paragraph in question appears to relate to office costs only and to exclude "overhead expenses and proceeding expenses". The Tribunal considers the transaction in question an authorized subcontract and upholds the claim to the unreimbursed amounts Harza International paid to Coopers Lybrand (U.S. $24,486.37). However, the Tribunal does not consider a subcontract to fall under Article 6, paragraph 4 of the Contract, as that provision is limited to certain types of tests and surveys; therefore the 5 percent fee authorized by the Article is not applicable, and the Tribunal disallows the claim for the fee.

F. Interest Through 30 June 1980

71. On its Final Statement of Account dated 30 June 1980, Harza International claimed interest on late payments at 12 percent per year. This claim was supported by schedules for each Project showing the amount of each Item 5 invoice, the date payment was due on it, the number of days the invoice was outstanding before it was liquidated by payments on account, and the interest due on the balance. As noted above, the Claimants submitted a recalculation of these interest claims dated 21 September 1982. This recalculation reduced slightly the claims for interest on the Karun Dam and Gotvand Irrigation Projects and added interest claims on the items of additional cost, that is, the training program, the model tests, the inspection services, Coopers Lybrand services, taxes and social security premiums. The revised total of these interest claims was U.S. $3,530,084.50.

72. The contractual basis for these interest claims is Item 7 of the 1971 Amendment:

Item 7 - Payments

> The payment schedules in Annex 4 shall prevail. All sums due to the ENGINEER shall be paid within thirty days of the due date. Should these payments be delayed beyond ninety days of the due date, then interest shall accrue to the balance due beginning with the thirty-first day after the due date at the prevailing rate of the Industrial Credit Bank of the Plan Organization.

73. KWPA points out that the payment schedules in Annex 4 referred to in the first sentence of Item 7 were solely for lump-sum payments, all of which were made when due; and KWPA argues that the remainder of Item 7, including the interest obligation, must, in context, be interpreted as limited to those payments scheduled by Annex 4. The Claimants argue that the language clearly covers all payments due, not just lump-sum payments and that it would have made no sense for the Parties to have provided for interest on one type of payment and not on the others. The Claimants also point out that KWPA, in its Statement of Defense in this Case, had argued that Harza International was not entitled to terminate the Contract on the grounds of non-payment because the interest provision in Item 7 ensured compensation in the event of delay in payments.

74. Several other questions were argued in connection with this issue. First, the Proces Verbal signed in February 1978 makes no reference to interest due on late payments when it sets new deadlines for payments of Item 5 invoices, and the question therefore arises whether the Proces Verbal and the Addendum did not implicitly waive any claim for interest prior to the new deadline 60 days thereafter (which was in early April 1978) for the payment of the invoices through May of 1976. The Claimants argued that any such waiver would have to have been explicit, although they acknowledged that, had KWPA carried out its payment obligations under the Proces Verbal, Harza International might well have waived its interest claims.

75. Second, if interest is due pursuant to Item 7, what is the proper rate of interest? The Claimants said they were advised by their Iranian associates, the Farman-Farmaian firm, that the proper rate was 12 percent. KWPA, which must be presumed to have access to the decisions of the Industrial Credit Bank, has denied that any interest is due under Item 7 and has introduced no evidence concerning the interest rate.

76. As the Tribunal held in subsection A above, it considers the claims in this Case to have arisen under Article 17 of the Contract for non-payment of the Final Statement of Account submitted with the notice of termination on 14 July 1980. That holding does not, however, resolve the present question, as pre-30 June 1980 interest was an element of that Final Statement of Account.

77. After considering the evidence and the arguments of the Parties, the Tribunal has concluded that the interest obligation in Item 7 of the 1971 Amendment applied only to late payments of the lump-sum payments set forth in Annex 4. While the 1971 Amendment also provided in Item 5 for man-month compensation, the main compensation contemplated by the Amendment was the lump-sum payments scheduled in Annex 4. Moreover, an obligation to pay interest on payments of specified amounts on specified dates is quite different from an obligation to pay interest on unforeseeable man-month invoices. In this connection, the Tribunal notes that, while the evidence contains many communications from Harza International to KWPA, beginning in 1974, in which payment of overdue invoices is demanded, the first mention of interest is found in a letter dated 26 April 1979. Thus, prior to the Revolution and the departure from Iran of Harza International's expatriate personnel, Harza International's conduct suggests that it did not interpret Item 7 of the 1971 Amendment as requiring interest payments on late Item 5

invoices. Accordingly, the Tribunal rejects Harza International's claim for interest prior to 30 June 1980.

G. Summary

78. In summation, the Tribunal has found the Contract claims valid in the following amounts:

1. Unpaid Man-Month Invoices:

a.	Karun Dam	U.S.	$3,751,176
b.	Gotvand Irrigation Project (Phase III-C)	U.S.	$3,860,628
c.	Gotvand Irrigation Project (other phases)	U.S.	$ 298,954
d.	Marun Dam	U.S.	$ 31,340
e.	Behbehan Irrigation Project	U.S.	$ 219,377

2. Additional Costs:

a.	KWPA Training Program	U.S.	$ 22,790.51
b.	Karun and Marun Dam Model Tests	U.S.	$ 17,692
c.	Karun Turbine Inspection Services		- 0 -
d.	Coopers & Lybrand Services	U.S.	$ 24,486.37
e.	Social Insurance Premiums and 10 percent additional tax on salaries of expatriate employees	U.S.	$ 354,827
f.	Additional taxes on lump-sum payments	U.S.	$ 192,238
g.	Estimated Iran Tax on Payments Received from 21 March 1979-20 March 1980		- 0 -

3.	12 Percent Interest on Late Payments through 30 June 1980	- 0 -
	Total	U.S. $8,773,508.88
4.	Deduction for unapproved salary increases	- U.S. $ 126,697.85
	Total	U.S. $8,646,811.03

79. In accordance with the decision of the Tribunal in Section III above that the Claimants are limited to recovery of 97.34 percent of the valid claims of Harza International, the Tribunal determines that the Claimants are entitled to recover on their claims U.S. $8,416,805.86.

V. THE COUNTERCLAIMS

80. In their Statement of Counterclaim, included in their 17 May 1982 Statement of Defense, Respondents raise twelve separate counterclaims in respect of both the Karun and Marun River Projects, seeking a total of 22,363,178,269 rials, or $294,382,608. With respect to the Karun River Development Project, Respondents raise three counterclaims concerning the Karun Dam and five counterclaims relating to the Gotvand Irrigation Project. Respondents' four remaining counterclaims relate to the Marun River project, including the Marun Dam and the Behbehan, Jaezan and Khalafabad Irrigation Projects. All counterclaims allege deficiencies in Harza International's work under the Contract.

A. Jurisdiction

81. The counterclaims originally were filed against Harza International. KWPA amended its Statement of Counterclaim

in its filing of 21 October 1982, substituting the Claimants for Harza International as Counterrespondents, relying upon Article 20 of the Tribunal Rules.[4] KWPA argues that both the claims and the counterclaims emanate from the same source, i.e., the Contract, and therefore both should be determined in a single forum, that the Claimants have in all instances referred to Harza International as a party to the claims, and that equity requires that jurisdiction over the counterclaims should be recognized as they are inseparable from the claims.

82. The Claimants, in their filing of 13 July 1982, requested the Tribunal to dismiss the counterclaims for lack of jurisdiction on the ground that Harza International is neither a party to the proceedings, nor, as a Liberian corporation, a U.S. national as defined in the Claims Settlement Declaration. The Claimants further argue that they are not parties to the Contract, upon which the counterclaims are based, and cannot be held liable for Harza International's alleged breach of that Contract. Moreover, as trustees for United States shareholders, the Claimants contend that they cannot be held liable for the acts of the corporation, because this would contravene the universally accepted principle of corporation law that shareholders are not liable personally for the obligations of a corporation. In this latter connection, they argue that while Article VII, paragraph 2, of the Claims Settlement Declaration

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[4] Article 20 provides:

> During the course of the arbitral proceedings either party may amend or supplement his claim or defence unless the arbitral tribunal considers it inappropriate to allow such amendment having regard to the delay in making it or prejudice to the other party or any other circumstances. However, a claim may not be amended in such a manner that it falls outside the jurisdiction of the arbitral tribunal.

permits U.S. shareholders to file claims on behalf of a foreign corporation, the Claims Settlement Declaration does not suggest that the distinction between the corporate entity and its shareholders can be ignored.

83. This dispute thus raises at least three preliminary questions:

(1) whether the Tribunal has jurisdiction over the counterclaims as against Harza International, a Liberian corporation, under Article II, paragraph 1 of the Declaration as counterclaims arising out of the same contract as the claim;

(2) whether the Tribunal has jurisdiction over the counterclaims as against the Claimants by virtue of the amendment of 21 October 1982;

(3) whether, in any event, the Tribunal may make a net award in favor of the counterclaims or consider them only as a set-off against the claims.

84. As to the first question, the Tribunal determines that it lacks jurisdiction over counterclaims brought against Harza International because counterclaims must be directed against a claimant and not against a third party. R.N. Pomeroy et. al. and Government of Islamic Republic of Iran, Award No. 50-40-3, p. 13 (8 June 1983). In this proceeding, Harza International is not a Claimant.

85. With respect to question (2), Article II, paragraph 1 of the Claims Settlement Declaration confers upon the Tribunal jurisdiction over "any counterclaim which arises out of the same contract . . . that constitutes the subject matter" of the claim of a national. As noted, the counterclaims raised here all relate to the Contract and thus fall within the Tribunal's subject matter jurisdiction.

If the claims had been brought as direct claims of Harza International, rather than as indirect claims of its shareholders, there would be no question that the Tribunal would have jurisdiction over the counterclaims. The issue before the Tribunal thus is whether a claimant that owns its claim indirectly is shielded jurisdictionally from counterclaims that could otherwise have been brought against the direct owner of the claim. We hold that it is not.

86. While the Claimants are correct in noting that claims against a corporation ordinarily may not be asserted against its shareholders, it also is true that shareholders such as the Claimants ordinarily may not assert claims belonging to their corporation. To the extent that the Claims Settlement Declaration provides otherwise and permits shareholders to raise corporate claims, equity requires that they take such claims subject to the defenses and counterclaims that could have been raised as against the corporation. The Tribunal therefore holds that it has jurisdiction over the counterclaims raised by KWPA against the Claimants and arising out of the Contract. However, in view of the individual determinations below dismissing the counterclaims on the merits, the Tribunal need not decide the third question above concerning whether a net award can be made in favor of the counterclaims.

B. General Considerations Concerning Liability

87. Before addressing the individual counterclaims, the Tribunal takes note of the standard of performance required of Harza International under the Contract. Article 12 provides that

> The ENGINEER shall fulfill his obligations under the Contract using his best technical knowledge and according to the best accepted professional standards. He shall exercise all his skill, care and diligence in the discharge of the duties undertaken by him.

Moreover, none of the contractual documents between Harza International and KWPA contained warranties against defects in construction. Accordingly, Harza can be held liable for its contractual performance only if Harza demonstrably failed to meet the standards quoted above from Article 12; the mere existence of a defect or problem in any of the projects for which Harza served as consulting engineer does not ipso facto compel the conclusion that Harza is liable for such defect or problem. Indeed, warranties against such defects are normally included in contracts with construction contractors, not in contracts with consulting engineers.

C. The Karun River Development Project

1. The Karun Dam

88. The three counterclaims relating to the Karun Dam comprise claims for (1) damages allegedly stemming from the discovery during construction of a clay seam in the right abutment of the dam and the remedial works completed in response; (2) cavitation damage to the dam spillway, and; (3) problems with a waterway valve in Tunnel No. 1 built in the left abutment of the dam.

a. Clay Seam in Right Abutment

89. In 1972, after construction of the Karun Dam had begun, an unforeseen anomaly or "geological accident," in the words of the Tribunal's expert, Jean Kerisel, was discovered in the right abutment of the dam. This geological anomaly was an area roughly 130 meters long with a maximum width of 20 meters of clay, water and air solution features. In 1974, detailed exploration revealed that this anomaly contained one large (6 meter wide) mainly clay-filled cavity. This area required remedial works to prevent seepage from the future reservoir of the dam, which could have led ultimately to risks of instability. The

remedial measures chosen and effected included the construction within the abutment of a concrete wall 2 to 3 meters thick, 146 meters high, and 28 meters wide, and a large extension of the grout curtain and of its drainage system. That these remedial works were necessary and that they added to the cost of the dam and delayed its completion are facts not contested, but whether any costs or time would have been saved had the geological accident been discovered during the preliminary investigations rather than during construction is disputed, as is the basic question here whether Harza International carried out those preliminary investigations "using his best technical knowledge and according to the best accepted technical standards," as required by the Contract.

90. KWPA seeks as damages its costs in carrying out the remedial works as well as damages for the delayed completion of the dam. KWPA alleges that Harza International deliberately concealed the existence of the solution cavity and that its preconstruction exploration program was inadequate.

91. The Tribunal referred four questions raised by this counterclaim to Mr. Kerisel:

> 1) whether the information available to Harza International prior to commencement of construction of the Karun Dam revealed the presence of a large clay seam in the right abutment of the Dam?
>
> 2) whether Harza International's program for foundation investigation at the Karun Dam site, (including, but not limited to, core borings, soil samplings, soil analysis, geological surveys, assistance to the Ministry in connection with the surveys and tests to be carried out by the Ministry, and supervision of the carrying out of such surveys and tests), was carried out using its best technical knowledge and according to the best professional standards as they existed at the time of that investigation?

3) whether and to what extent the geological discoveries made in the course of construction of the Karun Dam made necessary the works undertaken in order to ensure the stability and the security of the dam, and especially of its right abutment?

4) whether Harza International was responsible for undue delays, if any, in the design and the execution of the works made necessary by the composition of the soil.

92. Mr. Kerisel found no evidence that Harza International had concealed the existence of the geological accident. He also found that all of the remedial works recommended by Harza International and implemented by KWPA were necessary and in accordance with industry practices and standards then prevailing. These conclusions are not disputed by the Parties.

93. The expert's conclusions with respect to the two remaining questions are more controversial. As to the adequacy of Harza International's preliminary foundation exploration program reported in two 1969 engineering reports, Mr. Kerisel found that the progressive exploration program developed by Harza and the various tests and methods used "were chosen correctly according to the best standards existing in 1969."

94. Mr. Kerisel, however, expressed the view that the investigation program was not as extensive as it should have been. While concluding that the number of exploratory borings, or adits, drilled by Harza International was in line with prevailing standards, he nonetheless stated his belief that certain of the adits should have gone deeper into the right abutment. At the Hearing, he modified that view in light of the Claimant's evidence, taking issue not with the depth of the adits but rather with the number of boreholes drilled from the adits. Mr. Kerisel opined that more boreholes should have been made.

95. In response, the Claimants argued that the depth and location of the adits and boreholes in the right abutment were determined by their purpose in the context of the total exploration program and were fully adequate for that purpose, that the pre-construction exploration was fully consistent with general practice and fully accomplished its goals, and that even if a more extensive preliminary exploration program had been conducted, it was unlikely that the geological accident would have been discovered except by sheer chance. The Claimants introduced evidence and expert testimony in support of their position.

96. Before reaching a conclusion on this issue, the Tribunal must first determine whether the Contract permits KWPA to raise for the first time a claim in this proceeding for allegedly defective work of which it had notice in 1972-74. In this connection, the Tribunal notes Article 13(1) of the Contract, which provides as follows:

> If the Ministry notices that the ENGINEER has not sufficient technical knowledge and/or has not exercised the amount of care reasonably to be expected of a first class engineering firm, or has not taken care of the equipment entrusted to him by the MINISTRY, or should this work be delayed through the shortcomings or the fault of the Engineer, or should in general the Engineer not respect the Contract . . . the MINISTRY will give notice to the ENGINEER for the remedy of the work and the ENGINEER shall have to correct the faults in a specified time which, under no circumstances will exceed three (3) months. If, at the end of the specified time, the ENGINEER has not performed his duty, the MINISTRY have the right to terminate this Contract with a written notice fifteen (15) days in advance and without any other special procedure . . . .

97. Article 13(1) thus required KWPA to give Harza International notice of any defects in its work and an opportunity to cure such defects. If Harza failed to remedy its defective work, KWPA had the right to terminate the Contract. An additional provision limited Harza's liability

for defective work, permitting KWPA, in the event of termination for cause, to deduct its damages for faulty work from its final payment to Harza up to a maximum of 50 percent of the value of the services rendered by Harza prior to termination. The geological accident was discovered in 1972-74. KWPA raised no questions at that time of any deficiencies in Harza's work. No such notice was given when KWPA expressly approved the construction of the concrete wall and extension of the grout curtain in 1974 nor was notice given when the Procès Verbal was signed in 1978 requiring payment for pre-1976 work, including the remedial work in the right abutment.

98. KWPA argues, however, that it was not in a position to give notice of faults or shortcomings until they became aware of such deficiencies. KWPA also contends the nature of the work carried out by Harza International precluded the possibility of it evaluating such works until the works were completed and tested. The Tribunal finds that none of these arguments is valid in respect of the geological accident in the right abutment since KWPA was aware of the problem long before it filed its counterclaim in this proceeding, which, according to the record before us, is the first notice given to Harza that KWPA found fault with its geological investigations.

99. KWPA's failure to complain to Harza International about the quality of its work contemporaneously as the problem arose undermines the credibility of its complaint in this proceeding. Moreover, it appears that Article 13 of the Contract at least limits Harza's potential liability, if not barring the counterclaim outright. In any case, based upon the evidence before it concerning the merits of the dispute, the Tribunal is unable to conclude that Harza International's preliminary exploration program was not designed and implemented in accordance with its contractual standard of performance. The points of dispute between the Claimants

and Mr. Kerisel concern matters of engineering judgment, for which, the evidence indicates, no clear technical or professional standards exist and upon which experts could be expected to differ and did differ. The Tribunal therefore rules that Harza International fulfilled its contractual standard of performance in conducting the pre-construction exploration program.

100. In view of this determination concerning liability, the Tribunal need not discuss the issue of construction delays attributable to the geological accident, which issue relates solely to damages.

b. Spillway Cavitation Damage

101. KWPA's second counterclaim relating to the Karun Dam concerns the dam's spillway. The spillway is a gated chute intended to permit the discharge of water from the dam's reservoir. It is composed of three chutes side by side, located on a trench in the left abutment of the dam, which discharge into three flip buckets directing the current downstream.

102. Harza International completed the design of the Karun Dam spillway in 1968 and issued the construction drawings between 1968 and 1972. In December 1977, when the spillway was first used, serious cavitation damage was caused to the chute surfaces. The evidence indicated that construction had not met the required smoothness specifications. At the time, Harza recommended that, in addition to repairs and corrective work to refinish the spillway within design specifications, it would be prudent to add aeration. While KWPA attempted to do so, a contract dispute with the construction contractor frustrated the effort, and the repairs were limited to an attempt to meet the smoothness and finish specifications of the original design. KWPA reports that, subsequent to those repairs, cavitation damage

occurred again in 1980 and that Harza International is responsible under the Contract for its defective design. Harza denies liability, asserting that the design conformed to the best accepted standards at the time.

103. The Tribunal referred the technical issue raised by the counterclaim to its Expert, Mr. Pinto. It raised three questions:

> 1) whether the cavitation phenomenon in the Karun Dam Spillway was caused by the design of the spillway or by deficiencies in the construction work?
>
> 2) whether Harza International's design of the Karun Dam spillway and its provision of engineering services during the construction were carried out using its best technical knowledge and according to the best accepted professional standards as they existed at the time the design was completed and the supervision carried out and, if not, whether any such design or supervision defects contributed to the damage which occurred to the spillway in late 1977?
>
> 3) whether Harza International's responsibilities with respect to remedying the damages which occurred to the spillway in late 1977 were carried out using its best technical knowledge and according to the best accepted professional standards?

104. Mr. Pinto, in addressing the question of the spillway design, referred to similar contemporaneous projects and technical papers on the subject and concluded that, at the time it was completed in 1968, the spillway design followed the normal practice for dams of that type. In his view, there was no reason at the time to suspect that small surface irregularities would result in cavitation of the nature and extent of that experienced on the Karun Dam. To the contrary, the experience with the Karun Dam spillway represented a landmark in the history and understanding of chute spillway design from which later designs departed. Mr. Pinto therefore concluded that Harza International's

design was carried out according to its best knowledge and according to the best accepted professional standards as they existed at the time the design was completed and implemented. The Tribunal finds no basis in the record for disagreeing with this conclusion.

105. The evidence also indicates that, to the extent that cavitation was caused by the contractor's failure to meet smoothness specifications, Harza International properly fulfilled its supervision responsibilities. As specified in Annex I of the Contract, Harza's Phase III-C supervision duties included:

> (iii) Executing quality control tests of contractors' and manufacturers' work as required to insure proper performance of the contract.
>
> (iv) Instructing the contractors as necessary and inspecting their work with an adequate number of field inspectors.

The evidence demonstrates that Harza detected the deficiencies and instructed the contractor to repair its work. Harza issued a deficiency listing to the contractor in 1976 requiring the contractor to "repair and dress all unsound concrete on the upstream face and crest of the spillway", to "check concrete surfaces downstream of spillway gate bottom sills", and to "repair and dress all unsound concrete surfaces of walls, chutes and flip bucket." This deficiency listing was also communicated to KWPA. Accordingly, the Tribunal determines that, with respect to the contractor's failure to meet spillway smoothness specifications, Harza International had fulfilled its contractual supervision obligations by detecting defects, notifying the contractor and KWPA, and instructing the contractor to make the necessary repairs.

c. Tunnel No. 1 Valve

106. KWPA's third counterclaim relating to the Karun Dam alleges that one of the valves in Tunnel No. 1 at the Karun Dam is defective. Tunnel No. 1 is one of two diversion tunnels built in the left abutment of the Karun Dam site to divert the river around the construction area during construction of the dam. The Contract called for the installation in Tunnel No. 1 of two conduits, controlled by hollow-jet valves, to permit a regulated flow during reservoir filling. KWPA alleges that one of those valves has been leaking since it was closed in 1977, after the resevoir was filled, and attributes responsibility to Harza International.

107. The Tribunal referred the following issue to Mr. Pinto:

> whether Harza International's design of the valves in Tunnel No. 1 at the Karun Dam and its provision of engineering services during construction were carried out using its best technical knowledge and according to the best accepted professional standards as they existed at the time the design was completed and the supervision carried out and, if not, whether any such design or supervision defects contributed to the leakage of one of these valves?

Mr. Pinto concluded that "[a]ll evidence indicate [sic] that Harza International was not responsible for the design of the valves and that the supervision works were carried out adequately and did not contribute to the leaking of one of the T1 valves".

108. The Tribunal concurs in the Expert's conclusions. To the extent that KWPA's counterclaim relates to a design defect in selecting the valve, the relevant contract is clear that the contractor, not Harza International, bears

responsibility.[5] Indeed, correspondence between Harza International and the valve's manufacturer concerning the leak indicate that the manufacturer assumed responsibility for the valve's performance. To the extent KWPA's counterclaim relates to allegations of inadequate supervision, the evidence indicates the contrary. The Resevoir Closure Procès Verbal of 11 December 1976 documents that Harza International participated in the testing of the valves prior to the resevoir's filling, while later documents indicate that Harza International recommended remedial action once the leak was discovered. As noted earlier, Harza International's Phase III supervision responsibilities extended no further.

2. Gotvand Irrigation Project

a. Description of the Project

109. The Gotvand Irrigation Project is a large integrated development covering an irrigable area in excess of 40,000 hectares consisting of five major sections: the Gotvand unit, the Upper Daimchech West, the Upper Daimchech East, the Lower Daimchech, and the Aghill Unit. It includes a diversion dam on the Karun River, canals, water control structures, drains and roads.

110. KWPA authorized Harza International to proceed with Phase II (contract documents) and III-B (construction drawings) of the Project in July 1971, while Phase III-C (construction engineering) was assigned to Harza in

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[5] Section 6.2-08(A) of the relevant contract provides:

> The contractor shall design, furnish, construct, and operate a temporary outlet works in Tunnel No. 1 for maintaining a required downstream flow.

September 1974. Between November 1973 and December 1974 seven contracts were awarded to five Iranian contractors for the construction of various parts of the Project. Although incomplete, the Project was placed in operation in 1976. Certain deficiencies already had become apparent by August of that year. According to Harza International, most features of the Project were built and were in successful operation by the time of its departure in late 1978, but some work still remained, for example, the completion of the diversion dam, the lowest level Daimchech and Aghill irrigation channels, and the labor village.

b. The Counterclaims

(1) Cost Estimates and Contractors' Invoices

111. KWPA's first counterclaim relating to the Project alleges that Harza International's inadequate "studies and uncommon estimates" as well as its noncompliance with "scientific and practical principles in its computation", led to actual project costs greatly in excess of those it had estimated. KWPA points to the numerous variation and alteration orders prepared by Harza International as evidence of their negligent preliminary estimates. KWPA contends that if it had known of the project's likely actual cost, it would probably have abandoned it. A second and related counterclaim contends that Harza International confirmed false statements submitted by contractors, and approved variation orders which were baseless or in excess of authorization, resulting in overpayments by KWPA.

112. In response, the Claimants argue that Harza International prepared the cost estimates with due skill, care and diligence, based on what was reasonably foreseeable at the time; to the extent that actual costs incurred exceeded original estimates, the Claimants contend that this was the result of circumstances which were neither reasonably

foreseeable nor within its control, including unforeseen soil conditions and repair of unusual rain and flood damage. In addition, the Claimants state that cost overruns were, in many instances, the result of decisions and actions of KWPA.

113. As to the allegation that Harza International wrongly approved contractors' statements of account, the Claimants argue that Harza exercised the necessary skill and diligence in reviewing and approving such statements. The Claimants also contend that, under the contracts with the contractors, monthly statements and payments were deemed to be provisional; thus, any errors were correctable in later statements or in the final statement. Finally, the Claimants argue that KWPA has failed to produce any evidence indicating that a contractor actually was overpaid.

114. With respect to the variation orders, the Claimants contend that KWPA, in order to accelerate work on the project, had established a system whereby it authorized contractors to perform work called for by a pending variation order (i.e., one not yet approved) and to submit invoices for such work. According to the Claimants, the understanding was that if a contractor received payment under a variation order which KWPA later modified or disapproved, an appropriate adjustment would be made on the contractor's subsequent invoices. The Claimants therefore argue that Harza International acted correctly in approving contractors' invoices for work performed under pending variation orders. The Claimants further argue that, in any event, KWPA retained ten percent of all payments to contractors, which retentions prevented overpayment and protected KWPA.

115. The Tribunal submitted the issues raised by the two counterclaims to its Expert, Mr. Thouvenot, for his opinion. The question addressed to Mr. Thouvenot was phrased as follows:

> whether Harza International carried out its duties with respect to the estimation of the cost of the Gotvand Irrigation Project and the alleged transmission by Harza International to KWPA of irregular invoices for payment using its best technical knowledge and according to the best accepted professional standards?

Mr. Thouvenot concluded that the difference between the original and final estimated costs of the Project was 3,784,128,029 rials, and found that most of the variation orders which resulted in the increased cost had been approved by KWPA. As to the alleged overpayments resulting from irregular contractor invoices, the expert agreed with the Claimants that the purported errors cited by KWPA were covered by the monies retained by KWPA on contractor payments. KWPA has introduced no contrary evidence; therefore, the Tribunal accepts the expert's finding as to the alleged irregular invoices. Accordingly, the Tribunal rules that the counterclaim relating to irregular invoices must be dismissed, as KWPA has failed to demonstrate that it has sustained damages as a result of Harza International's alleged malfeasance. Moreover, the malfeasance itself has not been proved.

116. With respect to the counterclaim relating to cost estimates and variation orders, the Tribunal must first determine the respective duties of the Engineer and KWPA under the Contract. The services to be performed by Harza International, detailed in Appendix 2 to KWPA's letter of 1 April 1974 delegating Phase III-C to Harza, included the following:

> 9. Reviewing and performing engineering services related to any changes in the quantities and specifications of the works and proposing such changes to the Authority with reasonable justifications.
>
> 10. Assisting in the preparation of payment statements, and verifying and certifying these statements to indicate that the work

> accomplished and the payments due thereof (sic) the contractors are in accordance with the construction contract, and keeping the corresponding accounts.

Article 29 of the General Conditions attached to the construction contracts, relating to variation orders, provides:

> Increase or decrease in quantity of work under any items of the Contract up to 10% will be made by variation order of the Supervising Body and in excess thereof will only be effective by permission of the Owner.

Thus, while the preparation of variation orders was the responsibility of the Engineer, Harza International, their approval by KWPA was required. It is clear that KWPA is responsible for those variation orders it approved and cannot now claim they resulted from Harza International's negligence. KWPA's approval reflected the fact that the variations were necessary, for various reasons, including KWPA's acceleration of the project's schedule, repair of flood damage, and unforeseen soil conditions. As to those variation orders which were not approved or which were only partially approved, the question remains whether Harza International incurred any liability for contract invoices it approved under such orders.

117. The Tribunal concludes from the practice of the Parties that KWPA authorized its contractors to perform work on the basis of pending variation orders. KWPA's decision in July 1974 to accelerate the construction schedule made the lengthy approval period for variation orders a source of delay. The many meetings held between the Parties to discuss these variation orders indicate that the Parties had implicitly modified the contractual provisions to permit work and billing under pending variation orders, a procedure which in any event did not prevent KWPA from later disapproving the order and adjusting contractor invoices.

Accordingly, Harza International bears no liability under such orders. Moreover, KWPA has failed to demonstrate that it suffered damages as a result of Harza International's preparation of any variation order. The Tribunal observes that pending variation orders could have operated to the detriment only of the contractors and not KWPA. The Tribunal also notes that the 10 percent retention on payments made to contractors protected KWPA to some extent against overpayment. For the foregoing reasons, the Tribunal holds that the counterclaim for improper cost estimates is unfounded and therefore is dismissed.

(2) Inadequate Supervision and Failure to Submit As-Built Drawings

118. KWPA's third counterclaim relating to the Gotvand Project alleges that Harza International failed adequately to supervise the construction contractors and approved defective work, with the result that certain works failed to comply with contract specifications. As examples of such, KWPA claims that the concrete linings of the irrigation canals were built to insufficient thickness and that the contractors created and left untreated certain "borrow pits" adjacent to the irrigation canals. KWPA claims that these violations of the contract's specifications resulted in the failure of the canal linings. Additionally, KWPA asserts that the incorrect excavation of the foundation of a certain bridge in the Upper Daimchech East Canal caused the bridge to settle.

119. The Claimants acknowledge many of the defects but deny responsibility, asserting that inexperienced contractors were responsible and that Harza International had pointed out the defective work at the time. The Claimants also contend that the damage to the canals was much less extensive than that asserted by KWPA; they allege that by

the end of 1979 only 160 panels had failed out of a total of 194,000 in the main canals.

120. A fourth KWPA counterclaim alleges that Harza International failed to submit certain "as-built" drawings and other final documents, as required by the Contract. In response to this counterclaim, the Claimants contend that the documents cited by KWPA were to be submitted only upon the Project's completion. As events forced Harza International to depart Iran prior to completing the Project, the Claimants argue that they were excused from performing.

121. These two counterclaims were referred by the Tribunal to Mr. Kerisel for his expert opinion, in the following terms:

> whether Harza International carried out its duties using its best technical knowledge and according to the best professional standards with respect to the submission of properly executed detailed drawings and to the completion and supervision of the works of the Gotvand Irrigation Project, especially concerning the alleged disregard by contractors of the technical specifications, which allegedly resulted in the inadequate thickness of the linings of the canals, the existence of deep pits of stagnant water close to the canals and roadways and the endangering of various constructions (bridge 16 + 052 and culverts).

(a) Supervision of the Works

122. Harza International's obligations to supervise the contractors during Phase III-C of the Gotvand Project were specified in Appendix 2 of KWPA's 1 April 1974 letter. These responsibilities included:

> 4. Inspecting and testing the materials used and the equipment installed in various appurtenant structures of the project.

> 5. Instructing and guiding the contractors . . . as well as supervising them for the proper performance of the works and compliance with the necessary reports.
>
> . . .
>
> 7. Supervising all the tests to be performed in the laboratories of the contractors.
>
> . . .
>
> 17. Supervising the resident supervisory staff assigned by the Authority to the Engineer.

123. Mr. Kerisel did not find that Harza International was negligent in the manner in which it supervised the contractors, though he observed that Harza International's supervisors did make some mistakes during supervision. He states that the contractors had committed flagrant violations of the specifications set forth in the construction contract and had refused to correct defects noted by Harza International. Mr. Kerisel partially attributed the defects in the Project to what he considered to be an incomplete preliminary reconnaissance of the soils before tendering. The limited or absent reconnaisance, he suggested, resulted "in an inadequacy and a lack of flexibility of the Harza design" in some areas of the Project. In his opinion, the failure of the canal linings was attributable, in part, to the presence of collapsible soils, which collapsed when the concrete was poured into the excavated canals. The presence of such soils, Mr. Kerisel opined, should have led to a different design for the canals. The issue of the soils investigation program and responsibility for other alleged defects in the works are analyzed, in turn, below.

(b) Canal linings

124. One of the deficiencies alleged by KWPA is the failure to achieve uniformity in the thickness of the concrete canal

linings. The Claimants, however, contend that Harza International duly supervised the contractors involved, repeatedly reporting noncompliance with contract specifications to both the contractors and KWPA. The Claimants attribute the failure to achieve adequate and uniform lining thickness to the contractors' poor workmanship, and as Harza International brought these deficiencies to their notice, they urge that such failures cannot be attributed to Harza.

125. The Claimants submitted evidence to support their argument that at no time did Harza International accept or approve the defective canal linings, nor did it recommend the final acceptance of any of the works or recommend final payment. Further evidence was produced to show that Harza International had repeatedly brought the defects to the attention of both KWPA and the contractors and had recommended steps to remedy the deficiencies.

126. Based up on the evidence submitted, the Tribunal is satisfied that Harza International satisfactorily carried out its supervision duties in respect of the canal linings.

(c) Borrow Pits

127. A second deficiency alleged by KWPA to have resulted from Harza International's inadequate supervision of the works relates to what KWPA describes as "deep irregular cisterns in the vicinity of irrigation works" which "led to the wear and tear of adjacent land, and landslip beneath the channels," and which collected "stagnant waters," causing illnesses.

128. According to the Claimants, these pits adjacent to the canals from which the contractors "borrowed" soil to construct the canals resulted from the failure of the contractors to follow its instructions and recommendations.

Apparently, the use of borrow pits is common practice in such construction, but they are to be filled at a later stage. Harza International states that it recommended repeatedly a program to remedy the defects and included these recommendations in a number of communications it sent to KWPA in 1977 and 1978, copies of which were submitted.

129. The Tribunal also notes that Part VI, section 6.3 of the Technical Specifications for the Diversion Dam, provided that the Contractor was to "clear and grub the construction and borrow areas", in accordance with the specifications and as shown on the drawings or as directed. The Tribunal's Expert, Mr. Kerisel, noted that the contractors had failed to comply with the technical specifications.

130. As with the canal linings, the Tribunal is of the view that Harza International had carried out its contractual responsibilities under the Contract by bringing the defects to the contractor's attention and recommending remedial works. Accordingly, Harza International cannot be held liable for the failure of the contractors to comply with the contractual specifications.

(d) The Bridge

131. KWPA alleges that the foundation for the bridge at kilometer 16.052 on the East Daimchech canal was not properly excavated and that "as a result the bridge is sinking." The Claimants deny liability, asserting that Harza International was not required or expected to observe every stage of construction of every bridge. The Claimants also note that failure to excavate the site properly before the bridge was built would not necessarily have been detected by a later inspection and that even if such deficiency was detected, the contractor was responsible for its repair.

132. Mr. Kerisel found no evidence that the bridge had settled before the Upper Daimchech East Procès Verbal of 20 July 1977 was signed. The Procès Verbal provided for the "temporary take-over" of certain works which included the bridge, subject to the contractor correcting certain specified deficiencies. The deficiency list did not refer to the bridge. KWPA first notified Harza International of the settling in question in November 1979. KWPA has not supplied any evidence that the bridge had settled noticeably prior to Harza International's departure from Iran. Absent such proof, the Tribunal is unable to conclude that Harza International should have observed the defect and proposed remedial measures.

133. The Tribunal therefore finds Harza International not liable for the settling of the bridge.

(e) Soils Exploration Program

134. As noted, the Tribunal's Expert attributed the deficiencies in the canal linings in part to an inadequate soils exploration program. Mr. Kerisel also concluded that responsibility for the inadequacy of the soils program rested with both KWPA and Harza International. The Claimants deny any responsibility under the Contract. The Claimants also have contested Mr. Kerisel's criticism of the soils exploration program on the grounds (1) that the issue was not raised by any counterclaim and that, as a result, the Expert had exceeded his terms of reference, and (2) that the Expert misunderstood the extent of such exploration.

135. With respect to the first of these contentions, the Claimants correctly observe that KWPA's Statement of Counterclaim made no express reference to the Gotvand Irrigation Project's soils investigation. The relevant counterclaim in that document is entitled "Claim Related to Works Completed Not in Compliance with Technical

Specifications." The text asserts: "consequent to the absence of the Respondent [to the Counterclaims], the sub-contractors (sic) did not comply with the technical specifications, and the Respondent certified, contrary to facts, the works completed by the sub-contractors." From that text, and from the subsequent filings by KWPA, it appears that KWPA alleged a failure by Harza International to ensure compliance with the specifications. Thus, on the one hand, it is true that the counterclaims did not allege expressly defective soils investigation and that the adequacy of the soils investigation was a question raised for the first time by Mr. Kerisel.

136. On the other hand, the essence of the counterclaim can be understood more generally as a claim that Harza International is liable, by virtue of its negligence, for the defects that subsequently appeared in the work done by the contractors on the project. Understood in that broader sense, defects caused by inadequate soils investigation might well be within the scope of the counterclaim. The question is close enough so that we believe Mr. Kerisel was justified in examining the evidence relating to soils investigations. In any event, given our findings below concerning the limited responsibility of Harza International under the Contract for soils investigations, the Tribunal need not decide whether this counterclaim included that question.

137. With respect to the allocation of responsibility for formulating and undertaking the soils investigation program, Article 6(4) of the Contract provides:

> The MINISTRY shall bear the cost of providing the ENGINEER with the following items, to the extent needed by the ENGINEER:
>
> Core borings and soil samplings, soil analysis, geological and geographical surveys, hydrological data, hydrogeological surveys . . . , equiping and

> operating of a soil and material testing field-laboratory . . . etc.
>
> It shall be the duty of the ENGINEER to propose to the MINISTRY for approval the programs and detailed specifications of the surveys to be carried out, and help the MINISTRY in securing specialized services connected therewith, and to supervise the carrying out of these surveys and tests.

It is thus clear that it was not the responsibility of Harza International to carry out the soils investigation program; its sole responsibility was to propose a program for KWPA's approval and execution, which it did. This conclusion is buttressed by a further provision of Article 6(4) stating that "[t]he ENGINEER's responsibility shall be limited in case the results of surveys and tests, which are the duty of the MINISTRY or any other Governmental Agencies, are not provided to the ENGINEER in the detail and time necessary for the proper performance of this Contract."

138. The evidence indicates that Harza International adequately formulated the soils investigation program, which program KWPA has not challenged. The evidence also indicates that KWPA did not perform all of those tests which Harza International had recommended. Therefore, the Tribunal concludes that, to the extent KWPA has properly raised a counterclaim relating to the soils exploration program, it must be dismissed as unfounded.

(f) As-built Drawings

139. With respect to its counterclaim demanding the as-built drawings and other final documents for the Gotvand Project, KWPA argues that Harza International was obliged to submit such drawings pursuant to Article 19 of Appendix 2 to its delegation letter of 1 April 1974. KWPA further contends that force majeure conditions did not excuse Harza International from submitting these documents, since they

were to be handed over before the alleged force majeure occurred.

140. Article 19 provided that Harza International had to submit "at the completion of the construction works, five complete copies of the final report on the executed works including the relevant as-built drawings. One copy of this report shall be reproducible."

141. Clearly, the disputed documents were to be submitted only upon the completion of the construction works. Since force majeure conditions prevented these works from being completed, the Tribunal rules that Harza International was excused from preparing the as-built drawings and final reports.

(3) Counterclaim Relating to Diversion Dam

142. KWPA's fifth and final counterclaim concerning the Gotvand Irrigation Project relates to the diversion dam built downstream from the Karun Dam to divert water for the Gotvand Project. The diversion dam was damaged in February 1980 when flood waters overtopped the left earth embankment. KWPA attributes responsibility for such damage to Harza International, contending that Harza (1) inadequately trained the KWPA employees responsible for maintaining the dam; (2) negligently failed to remove from the approach channel the remains of a cofferdam, built during construction of the diversion dam, which blocked several of the dam's gates; (3) approved defective spillway gates, which could not be opened to prevent the flood.

143. The Tribunal referred the issues raised by this counterclaim to Mr. Pinto, posing two questions:

> [1] what were the causes of the excessive retention of water which in 1980 led to the flooding of the Gotvand Irrigation system?

> [2] whether Harza International carried out its duties with respect to the design of the Gotvand Irrigation Dam, the supervision of its construction and the transmission of instructions concerning its operation, using its best technical knowledge and according to the best accepted professional standards?

With respect to the first question, Mr. Pinto concluded that the main factor responsible for the overtopping of the dam in 1980 was the reduced capacity of the spillway attributable to abnormal opening conditions of the dam's fourteen gates. Mr. Pinto found that four of the gates were essentially closed during the flood, while the remaining ten were not opened fully. According to KWPA, the four closed gates did not open because of malfunctions in their electrical motors. KWPA also asserts that the maximum opening of the remaining gates was restricted to 5.5 meters by a metal piece welded into the gates. Mr. Pinto also found that the cofferdam remains probably contributed in reducing the discharge capacity of the spillway. Mr. Pinto concluded that

> If all gates had been able to operate, the overtopping of the dam could have been avoided, even if the approach channel were restricted as in 1978 and the opening of gates were limited to 5.5m. To have cleaned the approach channel alone would not have prevented the overtopping, as four closed gates and ten gates limited to 5.5m opening restrict the water discharge to less that the maximum observed flow. If the ten gates that did operate had opened completely, overtopping would probably have occurred because of the restriction due to the four closed gates and to the abnormal approaching flow conditions.

The responsibility for each of these aggravating conditions, as well as others cited by KWPA, is discussed below.

(a) Cofferdam Remains

144. The Tribunal rules that the responsibility for failing to remove the remains of the cofferdam lies with the contractor and not Harza International. Part VI, section 6.2-07 of the technical specifications for the diversion dam provides that it was the duty of the contractor to design and construct all cofferdams. Section 6.2-08 further provides that

> After having served their purpose, all cofferdams shall be removed down to the original ground surface unless otherwise agreed. . . . The method of removal of all cofferdams will be subject to the review of the Engineer. . . .

Thus, the cofferdam was to be built and removed by the Contractor, subject to Harza International's review. In this latter connection, the evidence indicates that Harza International had, in November 1978, instructed the contractors to remove the cofferdam. The evidence also indicates that, in July 1979, Harza pointed out that parts of the cofferdam, which had been washed out in an earlier flood in December 1978, had not been removed properly and were restricting the spillway capacity. According to Mr. Pinto, KWPA acknowledged that some clearing work had been done, but that it had not been very effective.

145. The Tribunal therefore finds that Harza International complied with its contractual duties in notifying both the contractor and KWPA of the deficiency as well as in recommending remedial works.

(b) Metal Protrusions

146. The Claimants have denied the existence of any metal protrusions on the spillway gates during the time Harza International's personnel were present at the site. The Claimants also deny that Harza International approved the

installation of any defective components in the spillway gate system.

147. With respect to the metal protrusions, Mr. Pinto noted that no details were provided by KWPA on the nature of these pieces, making an evaluation of the responsibility for their occurrence impossible. KWPA failed to introduce any evidence of these metal protrusions either to Mr. Pinto or to the Tribunal. Absent proof of their existence and of Harza International's responsibility, this counterclaim must be dismissed.

(c) Spillway Gate Components

148. As to KWPA's allegation that Harza International approved defective components of the spillway gate system, the Tribunal likewise finds no proof. The only components identified by KWPA as being defective were "electrical motors". However, as KWPA has provided the Tribunal with neither details concerning precisely which motors failed nor proof of such failure, the counterclaim must be dismissed for failure of proof.

(d) Training and Documentation

149. Harza International's training obligations are set forth in Articles 16 and 20 of Appendix 2 of KWPA's 1 April 1974 letter. The scope of these duties were:

> 16. Proposing the operations staffing schedule and training the Iranian personnel who will be assigned by the Authority to the Engineer for future operations.
>
> 20. Preparing the operation manuals including the instructions related to changes and maintenance of the executed works.

150. KWPA contends that the training program was never arranged and that the Article 20 instruction manuals were never submitted. The Claimants argue that Harza International had begun to train KWPA's trainees in 1978 on how to operate the diversion dam, but because of KWPA's inability to supply trainees, the program had progressed slowly. Further, they argue that when they left Iran in January 1979, the operation of the diversion dam was still the responsibility of the contractor and therefore they did not have the occasion to provide detailed written instructions to KWPA's staff. The Claimants submitted evidence demonstrating that Harza International did submit an "Operation and Maintenance Plan" to KWPA which indicated the importance of having a qualified person on duty to operate the diversion dam gates at all times.

151. The Tribunal need not address these contentions however, as no evidence has been adduced demonstrating that any of the damage complained of was caused by inadequate training. To the contrary, Mr. Pinto's report indicates that the problems experienced with the diversion dam resulted from physical and mechanical difficulties, not human error.

(e) Design

152. Although its original counterclaim did not allege design defects in the Gotvand Diversion Dam, KWPA nonetheless presented allegations of design defects to the Expert in September 1983. The alleged defects relate to the purported inadaptability of the Diversion Dam to local topography and conditions.

153. The Tribunal finds that it is not necessary to decide whether the alleged design deficiencies are properly before it as part of KWPA's counterclaim, because, as with KWPA's assertions of inadequacies in training and instruction, no

evidence has been produced linking the alleged deficiencies to the overtopping of the dam and resulting damages. Moreover, Mr. Pinto concluded that Harza International carried out its duties with respect to the design of the diversion dam in compliance with its contractual standards, and that the design selected was proper for the area. There is no basis in the record for questioning this conclusion.

D. The Marun River Development Project

154. As noted, the Marun River Development Project encompassed the Marun Dam and the Behbehan, Jaezan, and Khalafabad Irrigation Project. Harza International completed Phase I of the Contract in respect of this development project in December 1976, when it submitted its feasibility study. KWPA authorized Harza International to proceed with the preparation of contract documents (Phase II) on 11 October 1971 and with construction drawings (Phase III-B) on 9 November 1971. Harza International completed Phase II by the end of 1974, but KWPA requested revisions in April 1975 after an initial tendering resulted in the rejection of all bids. On 20 April 1976, however, KWPA notified Harza International that no further services would be required on the Marun Project after Harza completed its pending work. Harza finished its Phase II work in August 1976 and its Phase III-B work in March 1978.

155. KWPA raises four counterclaims in respect of this work. These counterclaims comprise (1) alleged deficiencies in the design of the Marun Dam spillway; (2) alleged deficiencies in the diversion tunnel gates and drainage system; (3) the alleged failure by Harza International to submit computation documents and a final report on Phase II of the Behbehan Irrigation Project; and, (4) the allegedly incomplete nature of Harza International's feasibility report on the Jaezan and Khalafabad Irrigation Projects.

1. Marun Dam Spillway

156. KWPA's first counterclaim relating to the Marun River Development Project alleges that "[a]ll of [Harza International's] computations related to the Marun Dam [Spillway] are wrong and in contrast to scientific and practical principles." At issue is Harza International's design for the spillway. The original design, completed in 1974, followed that of the Karun Dam, utilizing strict finishing specifications for the concrete surface to prevent cavitation. After the experience with the Karun Dam, Harza International suggested that the design of the Marun Spillway be modified to incorporate aeration.

157. The Claimants contend that the design comported with the then prevailing technical and professional standards. In any event, the Claimants argue that, as KWPA never proceeded with construction of the project, it could not have sustained damage as a result of any engineering design. In support of their position, the Claimants point out that at no time until this proceeding, including its letter of termination of 20 April 1976, did KWPA notify Harza International of any dissatisfaction with the Marun Dam design.

158. The Tribunal asked Mr. Pinto

> whether Harza International's design of the Marun Dam spillway and the later proposed modification to that design were carried out using its best technical knowledge and according to the best accepted professional standards as they existed at the time the design was completed and the modification proposed?

In reply, Mr. Pinto concluded that

> The lack of aeration troughs in the initial Marun spillway does not invalidate the overall project which otherwise followed the best accepted professional standards for that kind of structure.

> Updating the spillway design to include aeration devices does not mean a major modification of the design as a whole, as aeration devices are additional features which can be added to the spillway design without major changes.

159. The Tribunal agrees with its Expert's conclusion that the design and modification of the Karun Dam spillway met the Contract's standards at the time they were proposed. Having concluded that the design of the Karun Dam spillway met the Contract's standards, the Tribunal must conclude likewise with respect to the similar design of the Marun Dam spillway. As to the proposed modifications to incorporate aeration, the Expert stated that "aeration of the flow has become the best technical solution to redress the probability of cavitation problems" and no evidence has been submitted suggesting otherwise.

2. Diversion Tunnel Gate and Drainage System

160. KWPA's second counterclaim relating to the Marun River project alleges that Harza International "did not carry out sufficient studies" regarding "the design and computation of the drainage of the Marun Dam and the diversion tunnel gate" and that Harza International failed to present on time its "final report" on the drainage system and diversion tunnel gate.

161. With respect to the diversion tunnel gate, the Tribunal determines that the Contractor, not the Engineer, was responsible for the design of the diversion tunnel and gates. Section 6.2, Part VI of the Technical Specifications for the Marun Dam provides:

> In accordance with the specifications contained in this Section and as shown on the drawings, the Contractor shall design, construct, operate and remove after use, a system including a tunnel, temporary cofferdams and pumping installations, to divert the river during construction . . . The Contractor may adopt the illustrated scheme and

> develop it fully, or may modify it, or develop an alternative scheme.

Accordingly, no basis exists for holding Harza International liable for the design of the diversion tunnel gate.

162. As to the allegation concerning the drainage of the Marun Dam, confusion exists as to the scope of the counterclaim. While its Statement of Counterclaim referred to "the drainage of the Marun Dam", KWPA's Rejoinder objects, in general, to the design, computations and drawings "for the Marun Dam drainage network", in which KWPA includes the Bebehan irrigation project. As to the merits of the counterclaim, regardless of its scope, KWPA's only specified objection was to the scale used by Harza International in preparing project maps, which it contends resulted in distortions.

163. The Tribunal finds it unnecessary to rule on the scope of KWPA's counterclaim in view of KWPA's failure to adduce any evidence of design defects in the Marun Dam drainage system or network, however defined. The Tribunal's expert, Mr. Kerisel, notes that KWPA never clarified what distortions it found on Harza International's maps, and he found none. As to KWPA's more general allegation of design defects, Mr. Kerisel concluded:

> Whatever the extent given to the works of the Marun dam drainage system, there is not in the litigation the slightest reference to a defect in the drainage. Consequently, no proof has been given that the Marun dam drainage system was not carried out using the best technical knowledge and according to the best accepted professional standard as they existed at the time when the design was accepted.

Nothing in the record before the Tribunal compels a contrary conclusion.

164. Finally, the Tribunal finds KWPA's assertion that Harza International failed to submit a final report on the drainage system and diversion tunnel gate also to be without foundation. While KWPA has not identified the "final report" it contends it was owed, the evidence indicates that Harza submitted all documents required under Phases II and III-B of the Marun Dam project, either directly to KWPA or to entities designated by KWPA. The evidence demonstrates that Harza International transmitted revised tender documents on 17 August 1976 and submitted construction drawings, maps, and other documents relating to the Marun Dam throughout the period of the Contract. Indeed, these documents were examined by three companies appointed by KWPA, as they acknowledge in a letter of 21 June 1981. The Tribunal thus concurs in the conclusion of Mr. Kerisel, who found no basis for KWPA's allegation.

3. Behbehan Irrigation Channels

165. KWPA's next counterclaim, as set forth in its Statement of Counterclaim, alleges that Harza International failed to submit "[t]he computation documents and final report on Phase II of the Behbehan Irrigation Channel." Later in the proceedings, KWPA complained that Harza International had failed to provide "computation sheets, original drawings or reproducible copies of the Behbehan Irrigation Network."

166. The Tribunal begins its analysis of this counterclaim by noting that no provision of the Contract required Harza International to provide its computation documents. Thus, there is no basis for demanding such documents here. As to KWPA's complaint that Harza International submitted drawings other than original or reproducible copies, the Tribunal similarly notes that the Contract does not specify that original or reproducible drawings be submitted. Moreover, Article 4(2) provides that Harza International was to submit ten copies of every report and document for comment and

approval, after which KWPA had two months within which to request corrections. If no such request was made, the documents and reports were to be deemed accepted. The evidence indicates that Harza International submitted to KWPA ten black and white prints of all relevant drawings on 3 March 1978 and 20 March 1978 and that KWPA did not object to the submission of prints until March 1980 -- two years later instead of within the two month period prescribed by the Contract. Having failed to request that the drawings be submitted in different form within the specified period, KWPA must be deemed to have accepted them.

167. Finally, with respect to KWPA's assertion of missing Phase II "reports", the Tribunal finds that all contract documents for the Behbehan project were submitted and revised in accordance with KWPA's instructions. As no other reports were required in that phase of the project, the Tribunal finds no basis for KWPA's complaint.

4. Jaezan and Khalafabad Irrigation Projects

168. KWPA's final counterclaim alleges that "[t]he preliminary report on Phase I, Jayzan and Khalaf Abad Irrigation Channels is incomplete, and the data supplied is at cognizance level." The Tribunal therefore asked Messrs. Thouvenot and Pinto to investigate

> whether Harza International submitted the computation documents and final reports of the Behbehan irrigation network, and whether the preliminary report on Phase I of the Jayzan and Khalajabad irrigation projects submitted by Harza was adequate and in conformity with its best technical knowledge and best professional standards.

169. The Phase I feasibility studies for the Jaezan and Khalafabad projects comprised part of the Marun River Development Feasibility Report submitted by Harza International in 1967. KWPA did not raise any

contemporaneous objections to the report; accordingly, it must be deemed to have been accepted under Article 4(2) of the Contract.

170. Moreover, the Tribunal confirms the conclusion of its Experts that, while the Feasibility Report's discussion of the Jaezan and Khalafabad Projects was less extensive than its discussion of the Marun Dam, the Behbehan Irrigation Project and the Shadegan Irrigation Project,

> [t]he lesser extent of the preliminary studies for the Jayzan and Khalafabad areas seems to have been the natural outcome of the lack of basic topographical data and of the natural order of priority of that part of the project, in respect to the overall Marun river development.

Article 6(4) of the Contract clearly provides that it was KWPA's obligation to "bear the cost of providing the Engineer with . . . topographical surveys"; it also expressly limits the Engineer's liability in the event that such survey "were not provided to the ENGINEER in the detail and time necessary for the proper performance of this Contract." Thus, any inadequacies in the Jaezan and Khalafabad sections of the report are attributable to KWPA, not Harza.

E. Other Counterclaims

171. In addition to the counterclaims set forth in its Statement of Counterclaim, the Respondents have, in various other filings, articulated new counterclaims and allegations of wrongdoing by Harza International. For example, in a second Statement of Defense filed on 21 October 1982, the Respondents alleged as a new counterclaim that the seismology of the Karun and Marun Dam sites had not been adequately considered by Harza in selecting those sites. In its final Memorial of 13 September 1985, KWPA also alleged that Harza International had not adequately studied the

movement of the dam that would result from filling its reservoir. KWPA also sought payment of bank guarantees obtained by Harza International in connection with its work under the Contract, as well as payment for taxes and social security obligations allegedly owed.

172. The Tribunal dismissed the counterclaim relating to seismology in its Interlocutory Award of 23 February 1983 as untimely filed within the terms of Article 19(3) of the Tribunal Rules. All other counterclaims not contained in the Respondents' 17 May 1982 Statement of Counterclaim must likewise be dismissed.[6]

VI. INTEREST

173. Pursuant to Article 17 of the Contract, KWPA was obligated to pay the final statement of account within one month after receipt. The 30 June 1980 statement was submitted by letter dated 14 July 1980. Allowing one week for its receipt by KWPA, the statement was due to be paid on 21 August 1980.

174. The Tribunal rules that the Claimants are entitled to interest as of this date and determines that an annual rate of 12 percent simple interest is appropriate. In this connection, the Tribunal notes that Item 7 of the 1971 Amendment to the Contract provided for interest at the

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[6]While KWPA's 17 May 1982 Statement of Defense briefly refers to taxes and social security premiums as a defense to the claim, no mention of them is made in the Statement of Counterclaim. In any case, the Tribunal has held that it lacks jurisdiction over general tax and social security counterclaims. See T.C.S.B., Inc. and Iran, Award No. 114-140-2, p. 24 (16 Mar. 1984); Sylvania Technical Systems, Inc. and Government of Islamic Republic of Iran, Award No. 180-64-1, pp. 40-41 (27 June 1985); International Technical Products Corp. et al. and Government of Islamic Republic of Iran et al., Award No. 196-302-3, p. 29 (28 Oct. 1985).

prevailing rate of the Industrial Credit Bank of the Plan Organization. The Claimants alleged that this rate was 12 percent, and KWPA did not disagree.

VII. COSTS

175. In the course of the proceedings in this Case, each Party has advanced U.S.$ 85,000 against the cost of the experts appointed by the Tribunal. The actual cost has amounted to U.S.$ 163,413.74, leaving a balance with the Tribunal of U.S.$ 6,586.26. The services of the experts were required primarily because of a number of counterclaims which raised technical, engineering questions. These costs clearly are costs which the Tribunal Rules state shall in principle be borne by the unsuccessful party. In the circumstances of this Case, where the Claimants have prevailed both on their Claims and on the Counterclaims, the Tribunal believes these costs should be borne by KWPA. The remaining balance with the Tribunal should be paid to the Claimants, and the balance of the U.S.$ 85,000 should be awarded to them. With respect to all other costs, each Party shall bear its own costs of arbitration.

VIII. AWARD

176. For the foregoing reasons,

THE TRIBUNAL HEREBY AWARDS AS FOLLOWS:

a) The KHUZESTAN WATER AND POWER AUTHORITY is obligated to pay to the Claimants, RICHARD D. HARZA, JOHN A. SCOVILLE and GEORGE E. PABICH, the sum of Eight million four hundred sixteen thousand eight hundred five United States Dollars and Eighty-six Cents (U.S.$ 8,416,805.86), plus simple interest at the rate of 12 percent per annum (365-day basis), from 21 August 1980 up to and including the date on which the Escrow Agent instructs the Depositary Bank to effect payment out of the Security Account, on the contract

claims, plus the sum of Seventy-eight thousand four hundred thirteen United States Dollars and Seventy-four Cents (U.S.$ 78,413.74) as partial costs of expert advice.

b) The claim for expropriation of personal property is dismissed on the merits as are the twelve counterclaims raised by KWPA relating to the contracts claimed upon. All remaining counterclaims are dismissed as untimely filed.

c) The above obligations shall be satisfied out of the Security Account established pursuant to Paragraph 7 of the Declaration of the Democratic and Popular Republic of Algeria, dated 19 January 1981.

d) The Secretary-General of the Tribunal shall pay to the Claimants, RICHARD D. HARZA, JOHN A. SCOVILLE and GEORGE E. PABICH, the sum of Six thousand five hundred eighty-six United States Dollars and Twenty-six Cents (U.S.$ 6,586.26), representing the remainder of the amounts advanced for the costs of experts, as the balance of the costs of expert advice.

e) With respect to all costs other than the costs of expert advice, each Party shall bear its own costs of arbitration.

f) This Award is submitted to the President of the Tribunal for the purpose of notification to the Escrow Agent.

Dated, The Hague
~~April~~ 1986
2 May

Robert Briner
Chairman
Chamber Two

In the name of God

Hamid Bahrami-Ahmadi
Diseenting in parts,
concurring in parts,
as elaborated in the
dissenting opinion

George H. Aldrich