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技术合作计划 | TECHNICAL COOPERATION PROGRAMME | PROGRAMME DE COOPÉRATION TECHNIQUE | PROGRAMA DE COOPERACIÓN TÉCNICA | برنامج التعاون الفني

PAYS: LIBAN

République Libanaise
Bureau du Ministre d'Etat pour la Réforme Administrative
Centre des Projets et des Etudes sur le Secteur Public
(C.P.E.S.P.)

DENOMINATION DU PROJET: Relèvement de la production piscicole dans la plaine nord-est de la Bekaa

NUMERO DU PROJET: TCP/LEB/6755(E)

DATE DE DEMARRAGE: août 1987

الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

DATE D'ACHEVEMENT: janvier 1988

MINISTERE CHARGE DE L'EXECUTION DU PROJET: Conseil pour le développement et la reconstruction

CONTRIBUTION DE LA FAO: 50 000 dollars EU

REPRESENTATION FAO FIAT PANIS BEYROUTH – LIBAN

Signé: ..... Signé: .....

Edouard Saouma
Directeur général

(pour le Gouvernement)

(pour la FAO)

Malek SALAM
Président
CDR

Date de signature: 19/8/87. Date de signature: 21 AOUT 1987

I. ANTECEDENTS ET JUSTIFICATION

Le 15 juin 1987, des pluies torrentielles ont causé de graves inondations et d'importants dégâts aux activités horticoles et autres infrastructures de la région nord-est de la plaine de la Bekaa.

Sur une population totale de 84 000 personnes, on estime à 792 le nombre des familles sinistrées du secteur en raison des inondations qui ont recouvert 1 140 ha. Des comités locaux se sont constitués pour recueillir des informations et organiser les secours. le Gouvernement a débloqué 15 millions de livres libanaises (environ 100 000 dollars EU) pour les réparations à entreprendre sous la responsabilité des autorités locales.

Dans sa demande officielle d'assistance en date du 30 juin 1987, le vice-président du Haut Comité national chargé des secours reconnaît que la population, qui dépend dans une très large mesure de la commercialisation de la production de poisson, a déjà commencé à réparer les étangs endommagés. En revanche, l'acquisition des alevins destinés à remplacer un stock à peu près entièrement détruit pose de graves problèmes.

II. OBJECTIF DE L'ASSISTANCE

Le projet vise à aider le Gouvernement à contribuer au relèvement de la production piscicole dans la plaine de la Bekaa en fournissant aux familles sinistrées des alevins de truite qui leur permettront de rempoissonner leurs étangs et, ainsi, de retrouver leur gagne-pain habituel. Un autre objectif important consiste à rétablir l'approvisionnement du marché local en poisson.

III. PLAN DE TRAVAIL

Dès leur arrivée, les alevins seront transportés par route jusqu'au secteur sinistré. Sur la base des informations recueillies par les comités locaux, et d'un plan de destribution établi en collaboration avec le Conseil

pour le développement et la reconstruction, les alevins seront immédiatement remis aux familles remplissant les conditions requises.

IV. APPORTS DE LA FAO

Environ 150 000 alevins de truite arc-en-ciel. (Voir spécifications en Annexe.)

V. RAPPORT

La Représentation de la FAO rédigera un rapport sur l'exécution et les résultats du projet, éventuellement assorti de recommandations. En fonction de ce rapport, une lettre de conclusion sera adressée au Gouvernement par la FAO.

VI. CONTRIBUTION ET SOUTIEN DU GOUVERNEMENT

Comme indiqué plus haut, le Conseil pour le développement et la reconstruction a déjà affecté 15 millions de livres libanaises pour la reconstruction générale de la région inondée. Des membres du Conseil participeront également à la planification et à la distribution du matériel fourni au titre du présent projet. Le Gouvernement se chargera de la réception et de la distribution immédiate des alevins de truite arc-en-ciel importés. En outre, le Gouvernement autorisera l'entrée en franchise à l'aéroport du matériel importé et prendra à sa charge les frais de transport et de distribution aux sinistrés.

BUDGET DU PROJET COUVRANT

LA CONTRIBUTION DE LA FAO

(en dollars E.-U.)

Pays:	LIBAN
Titre du projet:	Relèvement de la production piscicole dans la plaine nord-est de la Bekaa.
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BUDGET

40. Frais généraux d'opération	2 000
50. Fournitures et matériel	48 000
TOTAL $E.-U.	50 000

Relèvement de la production piscicole dans la plaine nord-est de la Bekaa

ANNEXE

Spécifications

Alevins de truite arc-en-ciel (salmo gairdnerii)

- Suivant les disponibilités, les dimensions à partir du début du nourrissage jusqu'à 10 cm seront prises en considération. On a besoin de stocks reproducteurs normaux, mixtes, diploïdes.

- Le stock devra venir d'un élevage précis dont on puisse garantir l'origine et devra, si possible, être muni de certificats de laboratoire confirmant que le stock d'alevins est sain et non contaminé par les principaux agents pathogènes suivants, en particulier:

  - Maladie entérique "bouche rouge"
  - Maladie bactérienne des reins
  - Maladie prolifératives des reins
  - Septicémie virale hémorragique
  - Nécrose contagieuse du pancréas
  - Nécrose contagieuse hématopoïétique
  - Furonculose (Aeromonas hydrophila)
  - Tournis des truites
  - Maladie des reins à bactéries coryne.

- Le stock d'alevins devra être indemne de maladies et en bon état physique avant son expédition. Un certificat de non contamination et/ou de bon rendements dans des conditions normales d'élevage de truite est nécessaire.

R E P O R T

on the

FLOOD IN THE N.E. BEKAA VALLEY

(15th June, 1987)

FAO Representation

Beirut, 6th July 1987.

I N T R O D U C T I O N

On 15 June diluvian downpour fell on the North-East area of the Bekaa Valley on the localities of Faqha, Ras Baalbeck, Aarsal, and on the Assi Valley «Oronte» (please refer to the maps hereafter).

A request from the Government (High Relief Committee) was adressed on 30 June 1987 to the Director General of FAO, via his Representative in Beirut, requesting emergency assistance.

On the other hand, UNDRO-Beirut visited the above-mentioned area in order to estimate the damages caused by the rainfall and, by their telex No. 28248 dated 18 June 1987, informed their Headquarters of the important losses in general and particularly in the fields of agriculture and livestock.

In view of evaluating the damages suffered by agriculture (perennial and seasonal cultures, livestock, agricultural infrastructure) a mission from the FAO Representation went on site (1 and 2 July) and after visiting the distressed areas, could prepare this document.

This report is only the reflection of the findings of the mission and is intended merely to give the reader a true image of the destructions caused by the heavy rainfall of 15 June. It would be pointed out, however, that this is not the first time this region registers natural disasters due to floods, such heavy rainpour happened in the past, but never reached the actual catastrophic situation. It is, therefore, essential that decisions are taken at the national level in order to avoid the recurrence of such disasters which affected 792 families (about 4500 persons).

Tables 1 and 2 of the present report will give the reader some indicative figures as regards the useful assistance to be ensured immediately, and further on to the region and the distressed families.

The conclusions and recommendations are only provisional and non-exhaustive, they will allow the reader to realize the importance of an emergency assistance to the rural world in order to help saving the existing irrigated cultures and, as a second step, make the reconstruction of the infrastructures possible so that the rural populations could be maintained on their lands.

Finally, we wish to extend our thanks to the Caimacam of Hermel, to the Mouktars of Kaa and Aarsal, as well as to the Local Representative Committees of Faqha and Ras Baalbeck, and to the farmers and owners of fisheries on the spot whom we met, and who made our mission easy.

I. GENERAL INFORMATION

a) Topography/Soil

The North-Eastern part of the Bekaa Valley consists of two chains of high mountains separated by a plateau (Hermel/Kaa). In the eastern mountain separating Lebanon and Syria (Anti-Lebanon) agriculture is mainly in the low valleys which have thin agricultural soil (Picture 1).

Picture 1 : Typical exemple of agriculture in Faqha valley.

Soils, basically of calcareous type with stones, were formed from washed particles from mountains. They consist generally of a relatively poorer type of soil, restricted in kind of crops that can grow there, unless in irrigated areas.

b) Climate

Typically dryland with low rainfall (200-250mm) irregularly distributed, with cold winters and relatively hot summers.

.../...

c) Land Distribution

Size of fields seems relatively small (1.7 ha Average) as land distribution is reflected in the size of farms, mainly small size holdings, typical of most lebanese agriculture.

d) Irrigation System

Water springs along the foothills irrigate crops in the various villages (Faqha, Ras Baalbeck, Kaa). The major water source is the Assi River, where irrigation canals are used to water crops in the valley, and water pumps were recently installed to pump water from Assi to the higher plateaux, cultivated with vegetables and fruit trees.

e) Agricultural Activities

i) Crops : In the dryland, major crops are : fruit trees, like apricots, figs, cherries and field food crops (cereals and legumes : wheat, barley, chick peas) used as grain as well as forage.

In irrigated areas, fruit trees form the majority of crops (apricots, walnuts, figs, cherries, mulberries and few apple-trees, olives, pomegrenate) - vegetables are highly noticed in small size plots scattered in open areas of orchards, they consist of tomato, cucumbers, beans, corn .

ii) Fisheries : Fisheries of trout are scattered along the Assi river. They consist of commercial production of fish, with 4 main fisheries and several small-size trout ponds scattered around restaurants and other places in the Assi Valley.

iii) Animals : Animal production in the area does not constitute a major agricultural problem as draught animals or large herds of sheep and goat were not influenced much by the flood.

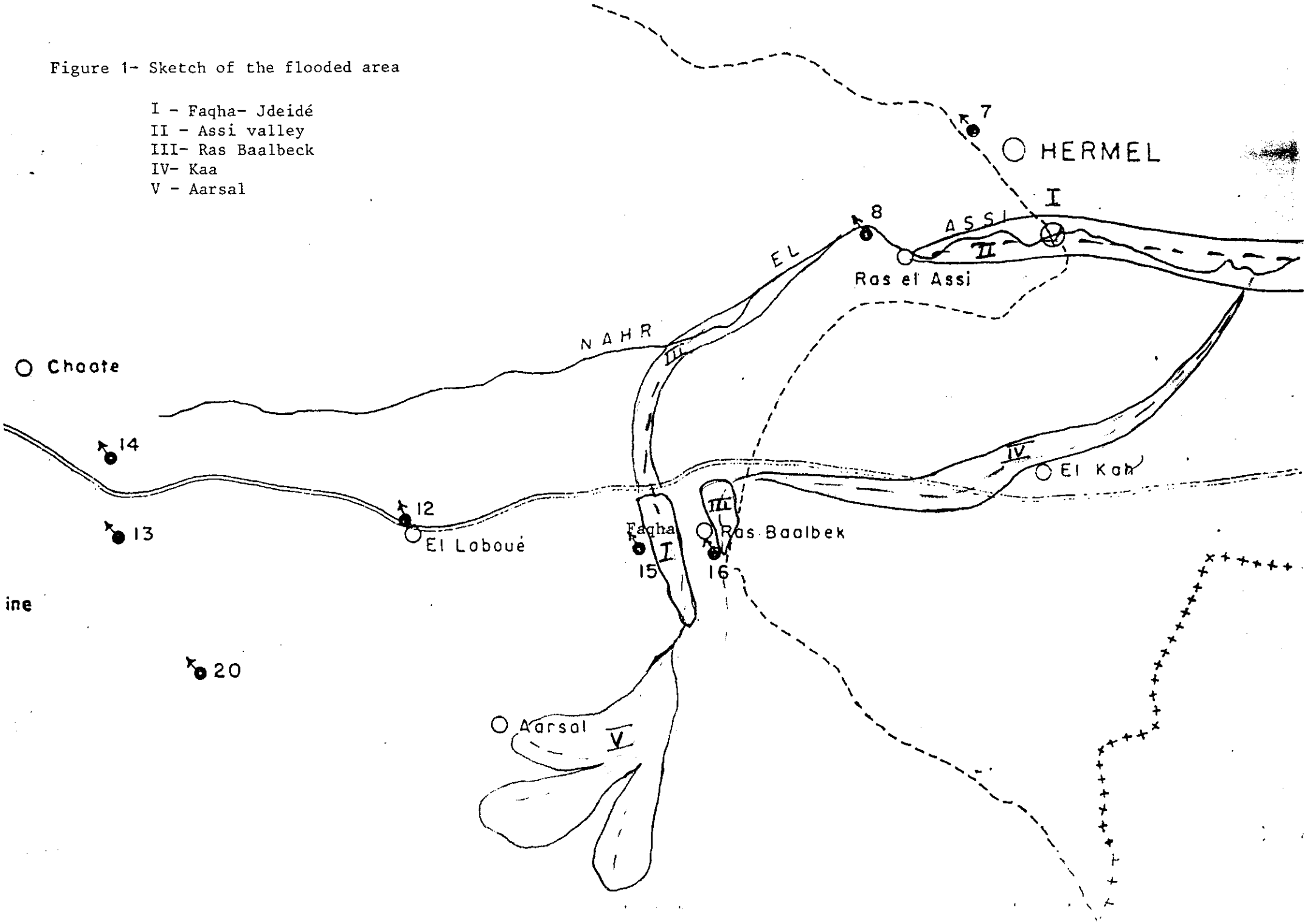
II. DESCRIPTION OF THE DISASTER

On 15th June 1987 at 4.00 p.m., torrential rains in the high mountains of the north-eastern chain (Anti-Lebanon) resulted in an accumulation of very large quantities of water (6,000 m^3/sec. for four hours) which moved at very high speed in the valleys which are usually dry at this time of the year.

The flood washed away soil, stones and rocks and destroyed along its path agricultural crops as well as infrastructures located in these valleys: irrigation water system (picture 2), municipal water system, electricity, bridges, houses, etc..)

Figure 1- Sketch of the flooded area

I - Faqha- Jdeidé
II - Assi valley
III- Ras Baalbeck
IV- Kaa
V - Aarsal



Picture 2 : Open irrigation canal destroyed.

The path of the flood within the lebanese territory was about 70 km long, including the Assi Valley and 100 to 1,000 meters wide depending on topography (figure 1) - the Agricultural area influenced by the flood may be estimated at 50 km x 225 m, i.e. 1,125 ha. The water deposited alluvium along its path on both sides, and stones and rocks in the mainstream, spoiling agricultural land.

The flood was divided into two main streams, one through Faqha and the other through Ras Baalbeck. Water reached the Assi River, raising the water level up to 3 meters high, causing damage to crops along the river basin and carrying with it all the fish from fisheries as well as from the Assi itself.

In each disaster area, local committees were appointed to assist in relief operations and collect information on people affected and nature of damage. These data have been helpful in our evaluation of agricultural losses.

The Council for Development and Reconstruction (CDR) has allocated 15 million Leb.Pounds (100,000 US $) to allow the local authorities to undertake major repairs in the damaged areas.

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Table 1: ESTIMATED AGRICULTURAL LOSSES IN DISASTER AREA

	Faqha-Jdeideh	Assi Valley	Ras Baalbek	Kaa	Aarsal	Total
I. Population	3,000	40,000	3,000	3,000	35,000	84,000
N° of affected families	90	192	100	10	400	792
Area covered by flood (Ha)	60	350	110	100	520	1,140
II. N° of Fruit trees *						
Apricots	600	8,000	3,000	100	1,000	12,700
Grapes	1,000	1,000	500	-	44,000	46,500
Cherries	-	-	-	-	20,000	20,000
Others (Walnuts,pears,Almonds,figs,olives)	400	500	500	50	150	1,600
III. Vegetables(tomatoes,cucumbers,beans,corn, etc...) (Ha)	10	60	10	2	-	82
IV. Cereals-Legumes (wheat,barley,lentils, pasture, etc...)(Ha)	-	40	85	96	240	461
V. Animals						
Fish	-	70,000 (4 fisheries)	-	-		70,000
Sheep/Goat	-	-	-	-	133	133
Mule/Donkey	1	-	-	-	2	3
VI. Irrigation systems	Canals blocked Bridge destroyed	25 pumps submerged Canals blocked Bridges destroyed	Canals blocked	2 wells		

* Tree numbers were calculated on basis of 25 m²/tree in irrigated areas and 40 m²/tree in dryland areas

III. STATEMENT OF MAIN DAMAGES

Figures indicated in Table 1 were communicated by local authorities or committees which have been organized after the disaster. They have been roughly corrected according to our own observations. We consider these evaluations as the most precise, taking into consideration that no statistics are available at present.

a) Direct Effects

- Infrastructure :-water distribution system
  -electricity
  -houses
- Erosion of soils (Picture 3)

Picture 3 : Erosion of soil.

- crops : trees, vegetables, field crops
- animals : fish and a few animals carried away.

b) Indirect effects

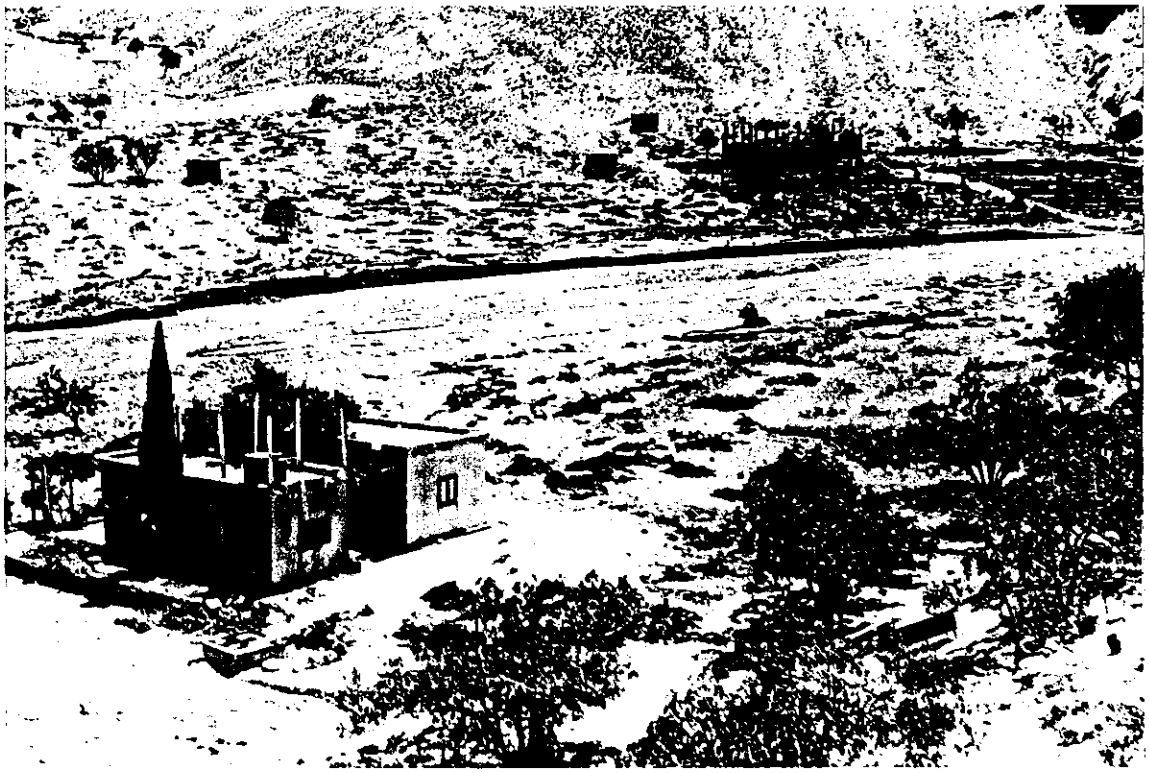
- Irrigation systems destroyed
- Undestroyed vegetations threatened with drought

- Risk of suffocation for crops which remained soaked for long periods.
- Alluvial deposits might influence soil fertility and productivity, becoming very hard to handle after drying.

IV. DESCRIPTION OF VISITED AREAS

a) Area I - Faqha/Jdeideh

The affected area is a narrow valley 4 km length and 200 meters average width, with agriculture constituted of partial flat land and terrasses. Fruit trees constitute the major agricultural cropping system (Picture 4)



Picture 4 : Typical exemple of cultures (vineyards) swept away by the flood.

Water moved at very high speed in this valley, reaching up to 6 meters height at narrow places. It removed terrasses, water pumps housing, irrigation canals, fruit trees, and some houses. One bridge was destroyed in Jdeideh (on the international road linking Baalbeck and Homs). Drinking water and irrigation systems were spoiled. So the extent of the agricultural damage might be accentuated in the warm summer by the absence of irrigation water.

Water moved down from Faqha to the Ras-Baalbeck agricultural zone along the Assi river basin.

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b) Area II - Assi Valley

The Assi Valley consists of a long strip of irrigated land along the Assi River (40 km long) with fruit trees as major crops and vegetable production among and in-between the fruit trees. Many bridges join the two banks of the river (Picture 5).

Picture 5 : Bridge destroyed by the flood.

A major agricultural activity is constituted by fish production, with trout fisheries installed along the banks of the river. This touristic area is rich with fish ponds around restaurants. The flood coming from the upper areas has caused the level of the river to rise up to 2 meters high and carry with it the bridges, restaurants, fruit trees and irrigation pumps, which are used to irrigate vegetables and fruit trees in the higher areas.

This indirectly influenced area was not estimated neither by this mission nor by the local authorities, but it is believed that large areas could be suffering there of water shortage.

Water being very muddy and stony swept the fish not only in the river but also in the fisheries next to the river, causing the complete loss of fish industry in this valley (Picture 6).

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Picture 6 : Fish ponds submerged and destroyed in front of a house.

The major damage in the Assi Valley was : the fish industry, the orchard trees submerged with water, the diversion of river flow to agricultural areas, the breaking or blocking of irrigation canals, and the carrying away of fertile top soil.

c) Area III - Ras-Baalbeck

The situation in Ras Baalbeck is more or less similar to that of Faqha as water moved mostly in a narrow valley causing damage to municipal installation of water and filling irrigation canals with debris and stones, affecting houses, sweeping roads and filling the roman aqueducts.

The major agricultural losses are in the «Ras Baalbeck Basin » located along the Assi River which received its water from the Faqha flood stream.

This area is equipped with cement irrigation canals which were totally or partially destroyed, and is cultivated with fruit trees, vegetables and field crops which were partly swept away.

d) Area IV - Kaa

The area of Kaa affected by flood is very large but fortunately it is flat. So water coming from the Ras Baalbeck flood stream was spread over a large area, causing minor damage and depositing only fine alluvium along its path. The damage was not very serious since water movement was slow and thin and the influenced area was used mostly as pasture . Two artesian wells buckled and some vegetables were soaked with alluvium.

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e) Area V - Aarsal

The flood originated in the hills surrounding the village and moved into three valleys : «Wadi Dam», «Wadi Zaarour» and «Wadi Hmeyd» which are the main agricultural areas of Aarsal.

The path of flow did not go in the village, so all the damage was on agricultural crops, mainly cereals, vineyards, fruit trees and pasture.

Some animals were carried with the flood and very large agricultural areas were influenced by this water flow.

Table 2 : Estimated Value of Agricultural Losses for 1987

Culture	Irrigated Land			Dry Land			
Trees	No. Trees	Yield (Kg/tree)	Value (Thousands Lebanese Pounds)	No. Trees	Kg/Tree	Value (Thousands Lebanese Pounds)	Total Value (Thousands Lebanese Pds.)
Apricots	11,700	30	24,500	1,000	10	700	25,200
Grapes	2,500	15	1,500	44,000	6	10,560	12,060
Cherries	-		-	20,000	15	24,000	24,000
Others	1,400	50	7,000	200	25	500	7,500
	ha	Leb.P./dunum		ha	Leb.P./dunum		
Vegetables	82	25,000	20,500				20,500
Cereals	221	2,000	442	240	1,000	240	682
	Numbers	Leb.P./Unit					
Animals							
Fish	70,000	300/Kg.(250g/unit)					3,900
Mule/donkeys	3	30,000/10,000					50
Sheep/Goats	133	8,000					1,064
Water Pumps							10,000
Irrigation canals							not evaluated*
Total							104,956

* an evaluation will be made by the CDR, however we assume the amount of losses will be very high.

V. CONCLUSIONS

1. By Presidential Decree, a first sum of 15 million Leb.Pounds has been allocated to undertake emergency repairs in the affected area, under the authority of the CDR.

2. At a local level the caimacam has undertaken to organize village committees to assist in relief operations after they already achieved to collect the basic data on damages affecting the various localities.

3. The water flow was very noisy as it carried with it stones and rocks so people in the lower areas were alerted earlier and most of the mobile property, vehicles and animals were moved before the flood reached the inhabited areas.

4. There was a general tendency among people that what was lost may not be recovered, but what could be saved of crops, trees or animals through rapid reestablishment of irrigation systems may be worth more than what is already lost.

5. Many inhabitants relying totally on business : agriculture, restaurants fisheries within these damaged areas have lost their income and property, and may be totally dependant on extra assistance.

6. Urban damage looked to be more serious than the direct agricultural damage.

7. The cost of indirect damage and future losses due to water shortage, water soaking, alluvium deposits, is very hard to evaluate, but could be much higher than direct damage evaluated in this report.

   The total cost of losses cannot, therefore, be evaluated before the end of the agricultural year, which will depend on the efficiency of assistance provided by local, regional and national authorities.

   Indeed, agricultural zones located above the flooded area depend totally on water pumped from lower areas. Water pumps damaged or swept away by the flood will have to be repaired or replaced.

8. Total direct losses for 1986/87 campaign may be evaluated to 105 million Lebanese Pounds, as shown in Table 2.

   For the agricultural year 1987/88, losses cannot be evaluated, but could be 10 times higher (or more) if major repairs (or replacement) of water pumps and irrigation canals are not rapidly undertaken.

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VI. RECOMMENDATIONS

In order to achieve efficient rehabilitation of the affected areas at all levels (infrastructure, water supply, land reclamation and economic activities particularly agriculture), it is essential that the programme be managed and administered through one public institution only, namely The Council for Development and Reconstruction (because of the actual paralysis of public administrations).

a) Short-Term Assistance Needed Immediately

i) to preserve existing cultures :

- rapid and temporary reconstruction of irrigation systems, and immediate provision of water pumps,
- restocking the Assi river and fisheries with trout fish (about 150,000 alvins).

ii) in view of the 1987/88 campaign :

- reclamation of the irrigation network in the affected valleys.
- rapid rehabilitation of the agricultural land affected by the flood ; clearing out the debris, levelling, ploughing, staking out, and preparing the land for cultivation (holes etc.)
- providing grafted plants of fruit trees,
- providing seeds of cereals and legume crops,
- supplying fertilizers for all cultures affected by the flood directly or indirectly,
- providing food assistance to farmers completely deprived after the destruction of their cultures (WFP).

b) Long-Term Assistance

- Reclamation of flooded land,
- Construction of small dams in the flooded area to regulate the water flow.
