

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

المهندس جاد السنيق

شرح المرسوم رقم ١٠٠٠/١٩٩٧

رئيس مصلحة حماية البيئة السكنية

BEYROUTH

المهندسة دلال بركات

٩٨/٨/٢٧

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

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.)

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

وزارة البيئة

١٩٩٨ آب ٢٤

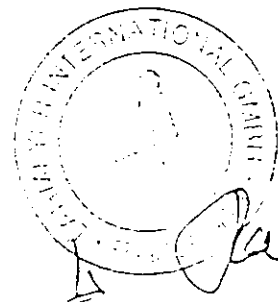
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CONSULTANT

LAHMEYER INTERNATIONAL

MAI 1998



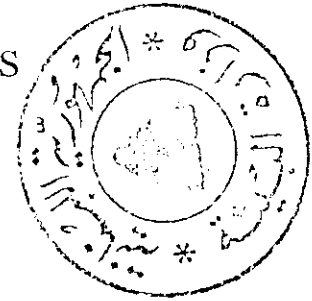
REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP



REGION N°2

LIBAN SUD

Entre

CONSEIL DU DEVELOPPEMENT
ET DE LA RECONSTRUCTION

Et

LE CONSULTANT

LAHMEYER INTERNATIONAL

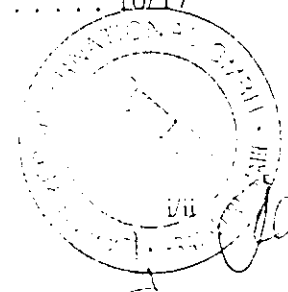
CONTRAT N°

PROJET N°

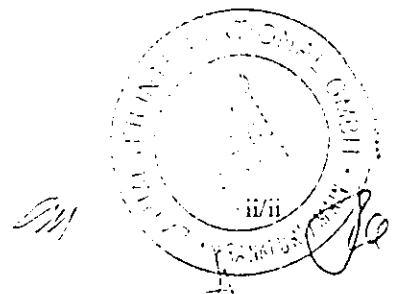


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PROJET DES DECHETS SOLIDES

REGION N°2: LIBAN SUD

I- CONTRAT

Le présent CONTRAT intitulé "Mission de surveillance des contrats d'exploitation du service public des déchets solides Région N°2 LIBAN SUD" est passé le 6^{ème} jour du mois de *août*, 1998 entre, d'une part, le **CONSEIL DU DÉVELOPPEMENT ET DE LA RECONSTRUCTION (CDR)** (ci-après appelé le Client) et, d'autre part, **LAHMEYER INTERNATIONAL GmbH** (ci-après appelé les "Consultants").

ATTENDU QUE

- (a) le Client a demandé aux Consultants de fournir certaines prestations de services définies dans les Conditions générales jointes au présent Contrat (ci-après intitulées les "Prestations");
- (b) les Consultants, ayant démontré au Client qu'ils ont l'expertise professionnelle, le personnel et les ressources techniques requises, ont convenu d'exécuter les Prestations conformément aux termes et conditions arrêtés au présent Contrat;
- (c) le financement est assuré par un budget du Gouvernement libanais transféré au CDR de la caisse Municipale à travers le Ministère des Affaires Rurales et Municipales.

EN CONSEQUENCE, les Parties ont convenu de ce qui suit:

1. Les documents suivants, qui sont joints au présent document, seront considérés comme faisant partie intégrante du présent Contrat:
 - (a) les Conditions générales du Contrat;
 - (b) les Conditions particulières du Contrat;
 - (c) les Annexes:

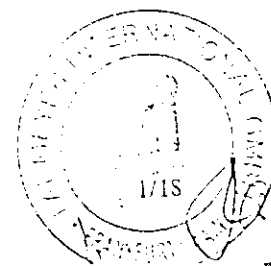
Annexe A: Termes de Référence

Annexe B: Personnel clé et Sous-traitants

Annexe C: Offre de prix forfaitaire du Consultant

Annexe D: Méthodologie du Consultant

Annexe E: Personnels clé et curriculum vitae

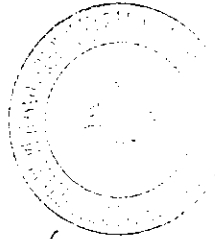


2. Les droits et obligations réciproques du Client et des Consultants sont ceux figurant au Contrat; en particulier:
- (a) les Consultants fourniront les Prestations conformément aux conditions du Contrat; et;
 - (b) le Client effectuera les paiements aux Consultants conformément aux conditions du Contrat.

EN FOI DE QUOI, les Parties au présent Contrat ont fait signer le présent Contrat en leurs noms respectifs les jour et an ci-dessus:

Pour le Conseil du Développement et de la Reconstruction et en son nom.

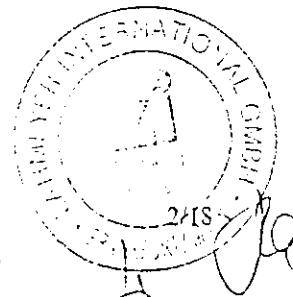
M. Nabil A. EL-JISR, Président
[Représentant Habilité]



de 6 Août 1998

Pour LAHMEYER INTERNATIONAL GmbH et en leur nom

M. HAMPEL Hans Joachim
[Représentant Habilité]



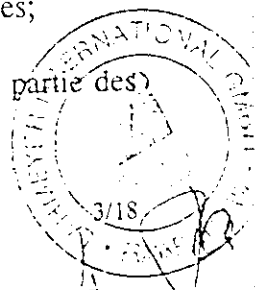
II- CONDITIONS GENERALES DU CONTRAT

1. Dispositions Générales

1.1 Définitions

A moins que le contexte ne le requière différemment, chaque fois qu'ils sont utilisés dans le présent Contrat, les termes ci-après ont les significations suivantes:

- (a) Droit applicable désigne les lois et autres textes ayant force de loi dans le pays du Gouvernement;
- (b) Banque: Banque du Gouvernement libanais;
- (c) Contrat: le présent Contrat passé entre le Client et les Consultants auquel sont jointes les présentes Conditions générales (CG) du Contrat ainsi que tous les documents énumérés à la Clause 1 du Contrat signé;
- (d) Montant du Contrat: prix qui doit être payé pour l'exécution des Prestations, conformément à la Clause 6;
- (e) Devises: toute autre monnaie que celle du Gouvernement;
- (f) CG: Conditions générales du Contrat;
- (g) Gouvernement: le Gouvernement du pays du Client;
- (h) Monnaie nationale: la monnaie du Gouvernement;
- (i) Membre du groupement: si les Consultants sont constitués par plusieurs entités juridiques, l'une quelconque de ces entités juridiques et Membres du groupement: toutes ces entités juridiques; Mandataire du groupement: l'entité juridique nommée dans les Conditions particulières comme étant autorisée par les Membre à exercer de leur part tous les droits, et remplir toutes les obligations des Consultants envers le Client au titre du présent Contrat;
- (j) Partie: le Client ou les Consultants, selon le cas; Parties: signifie le Client et les consultants
- (k) Personnel: les personnes engagées en tant qu'employés par les Consultants ou par un de leurs Sous-traitants, et affectées à l'exécution de tout ou partie des Prestations;
- (l) CP: Conditions particulières du Contrat qui permettent de modifier ou de compléter les Conditions générales
- (m) Prestations: les prestations que doivent effectuer les Consultants conformément au présent Contrat aux fins du Projet, comme indiqué à l'Annexe A ci-après;
- (n) Sous-traitant: toute entité à laquelle les Consultants sous-traitent une partie des Prestations aux termes des dispositions des Clauses 3.5 et 4.



1.2 Droit Applicable au Contrat

Le présent Contrat, sa signification, son interprétation, et les relations s'établissant entre les Parties seront soumis au Droit Applicable.

1.3 Langue

Le présent Contrat a été rédigé en français, qui sera la langue faisant foi pour toutes questions relatives à la signification ou à l'interprétation dudit Contrat.

1.4 Notifications

Toute notification, demande ou approbation requise ou accordée, faite conformément au présent Contrat, devra être sous forme écrite. Une telle notification, demande ou approbation sera considérée comme ayant été effectuée lorsqu'elle aura été transmise en personne à un représentant autorisé de la Partie à laquelle cette communication est adressée, ou lorsqu'elle aura été envoyée par lettre recommandée, télex, télégramme ou télécopie à cette Partie à l'adresse indiquée dans les Conditions particulières.

1.5 Lieux

Les Prestations seront rendues sur les lieux indiqués dans l'Annexe A et, lorsque la localisation d'une tâche particulière n'est pas précisée, en de tels lieux que le Client approuvera, dans son pays ou à l'étranger.

1.6 Représentants Désignés

Toute action qui peut ou qui doit être effectuée, et tout document qui peut ou qui doit être établi au titre du présent Contrat par le Client ou par les Consultants, sera effectuée ou établie par les représentants indiqués dans les CP.

1.7 Impôts et Taxes

Sauf indication contraire dans les CP, les Consultants, les Sous-traitants et le Personnel paieront les impôts, droits, taxes et autres charges imposés en vertu du Droit applicable et dont le montant est réputé être inclus dans le Prix du Contrat.

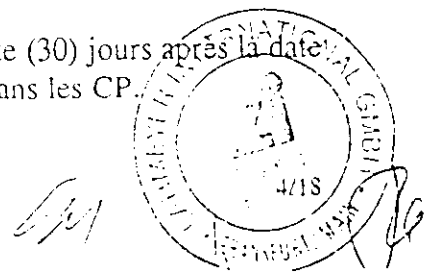
2. Commencement, Exécution, Amendement, et Résiliation du Contrat

2.1 Entrée en vigueur du Contrat

Le présent Contrat entrera en vigueur à la date à laquelle le Contrat est signé par les deux parties ou à toute autre date ultérieure indiquée dans les CP.

2.2 Commencement des Prestations

Les Consultants commenceront l'exécution des Prestations trente (30) jours après la date d'entrée en vigueur du Contrat ou à toute autre date indiquée dans les CP.



2.3 Achèvement du Contrat

A moins qu'il n'ait été résilié auparavant conformément aux dispositions de la Clause 2.6 ci-après, le présent Contrat prendra fin à l'issue de la période suivant la Date d'entrée en vigueur indiquée dans les CP.

2.4 Avenant

Aucun avenant aux termes et conditions du présent Contrat, y compris les modifications portées au volume des Prestations ou au Prix du Contrat, ne pourra être effectué sans accord écrit entre les Parties et ne pourra entrer en vigueur sans l'approbation de la Banque ou de l'Association.

2.5 Force Majeure

2.5.1 Définition

Aux fins du présent Contrat, force majeure signifie tout événement hors du contrôle d'une Partie et qui rend impossible l'exécution par une Partie de ses obligations, ou qui rend cette exécution si difficile qu'elle peut être tenue pour impossible dans de telles circonstances.

2.5.2 Non rupture de Contrat

Le manquement de l'une des Parties à l'une quelconque de ses obligations contractuelles ne constitue pas une rupture de Contrat, ou un manquement à ses obligations contractuelles, si un tel manquement résulte d'un cas de force majeure, dans la mesure où la Partie placée dans une telle situation: a) a pris toutes les précautions, et mesures raisonnables, pour lui permettre de remplir les termes et conditions du présent Contrat; et b) averti l'autre Partie de cet événement dans les plus brefs délais.

2.5.3 Prolongation des délais

Tout délai accordé à une Partie pour l'exécution de ses obligations contractuelles sera prorogé d'une durée égale à la période pendant laquelle cette Partie aura été mise dans l'incapacité d'exécuter ses obligations par suite d'un cas de force majeure.

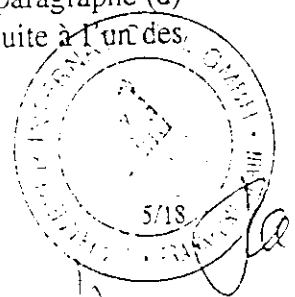
2.5.4 Paiements

Pendant la période où ils sont dans l'incapacité d'exécuter les Prestations à la suite d'un cas de force majeure, les Consultants continuent à être rémunérés conformément aux termes du présent Contrat; ils sont également remboursés dans une limite raisonnable des frais supplémentaires encourus pendant ladite période aux fins de l'exécution des Prestations et de leur reprise à la fin de ladite période.

2.6 Résiliation

2.6.1 Par le Client

Le Client peut résilier le contrat par notification écrite adressée aux Consultants dans un délai minimum de trente (30) jours (à l'exception des cas indiqués au paragraphe (d) ci-dessous, pour lesquels le délai minimum sera de soixante (60) jours), suite à l'un des événements indiqués aux paragraphes (a) à (c) ci-après:



- (a) si les Consultants ne remédient pas à un manquement à leurs obligations contractuelles dans les trente (30) jours suivant la réception de ladite notification ou dans le délai que le Client pourra avoir accepté ultérieurement par écrit;
- (b) si les Consultants font faillite ou entrent en règlement judiciaire;
- (c) si, suite à un cas de force majeure, les Consultants sont placés dans l'incapacité d'exécuter une partie substantielle des Prestations pendant une période au moins égale à soixante (60) jours; et
- (d) si le Client, de sa propre initiative et pour quelque raison que ce soit, décide de résilier le présent Contrat.

2.6.2 *Par les Consultants*

Les Consultants peuvent résilier le présent Contrat par notification écrite effectuée dans un délai qui ne saurait être inférieur à trente (30) jours suivant l'apparition de l'un des événements décrits aux paragraphes (a) et (b) ci-dessous:

- (a) si le Client ne règle pas, dans les quarante-cinq (45) jours suivant réception de la notification écrite des Consultants d'un retard de paiement, les sommes qui sont dues aux Consultants, conformément aux dispositions du présent Contrat, et non sujettes à contestation conformément aux dispositions de la Clause 7 ci-après; ou
- (b) si, à la suite d'un cas de force majeure, les Consultants se trouvent dans l'incapacité d'exécuter une partie substantielle des Prestations pendant une période d'au moins soixante (60) jours.

2.6.3 *Paiement à la Suite de la Résiliation*

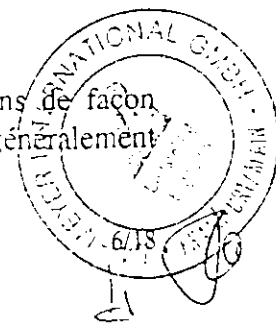
Sur résiliation du présent Contrat conformément aux dispositions des Clauses 2.6.1 ou 2.6.2 ci-dessus, le Client réglera aux Consultants les sommes suivantes:

- (a) la rémunération due conformément aux dispositions de la Clause 6 ci-après au titre des Prestations qui ont été effectuées de manière satisfaisante jusqu'à la date de résiliation; et
- (b) dans les cas de résiliation autres que ceux qui ont été définis dans les paragraphes (a) et (b) de la Clause 2.6.1 ci-dessus, le remboursement dans une limite raisonnable des dépenses résultant de la conclusion rapide et en bon ordre des Services, ainsi que des dépenses de rapatriement du personnel des Consultants et des membres de leur famille qui y ont droit.

3. Obligations des Consultants

3.1 Dispositions Générales

Les Consultants exécuteront les Prestations et rempliront leurs obligations de façon diligente, efficace et économique, conformément aux techniques et pratiques généralement



acceptées; pratiqueront une saine gestion; utiliseront des techniques de pointe appropriées et des équipements, machines, matériels et procédés sûrs et efficaces. Dans le cadre de l'exécution du présent Contrat ou des Prestations, les Consultants se comporteront toujours en conseillers loyaux du Client, et ils défendront en toute circonstance les intérêts du Client dans leurs rapports avec les Sous-traitants ou les Tiers.

3.2 Conflit d'Intérêts

3.2.1 *Commissions, Rabais, etc.*

La rémunération des Consultants qui sera versée conformément aux dispositions de la Clause 6 constituera la seule rémunération versée au titre du présent Contrat ou des Prestations et les Consultants n'accepteront pour eux-mêmes aucune commission à caractère commercial, rabais ou autre paiement de ce type lié aux activités conduites dans le cadre du présent Contrat ou des Prestations dans l'exécution de leurs obligations contractuelles, et ils s'efforceront à ce que leur Personnel et leurs agents, ainsi que les Sous-traitants, leur Personnel et leurs agents, ne perçoivent pas de rémunération supplémentaire de cette nature.

3.2.2 *Non-Participation des Consultants et de Leurs Associés à Certaines Activités*

Les Consultants, ainsi que leurs associés ou Sous-traitants, s'interdisent, pendant la durée du Contrat et à son issue, à fournir des biens, travaux ou services destinés à tout projet découlant des Prestations ou ayant un rapport étroit avec elles (à l'exception de l'exécution des Prestations et de leur continuation).

3.2.3 *Interdiction d'Activités Incompatibles*

Les Consultants, Sous-traitants, Personnel et agents ne devront pas s'engager, directement ou indirectement:

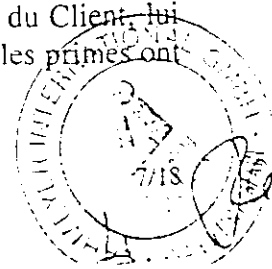
- (a) pendant la durée du présent Contrat, dans des activités professionnelles ou commerciales s'exerçant dans le pays du Gouvernement et qui pourraient être incompatibles avec les activités qui leur ont été confiées au titre du présent Contrat; et;
- (b) après la résiliation du présent Contrat, dans toute autre activité indiquée dans les CP.

3.3 Devoir de Réserve

Les Consultants, Sous-traitants et leur Personnel s'engagent à ne pas divulguer d'information confidentielle relative aux Prestations, au présent Contrat ou aux affaires et activités du Client sans autorisation préalable écrite de ce dernier, pendant les deux (2) années suivant l'achèvement du Contrat.

3.4 Assurance à la Charge des Consultants

Les Consultants (a) prendront et maintiendront, et feront en sorte que leurs Sous-traitants prennent et maintiennent à leurs frais (ou aux frais des Sous-traitants, le cas échéant), mais conformément aux termes et conditions approuvés par le Client, une assurance couvrant les risques et pour les montants indiqués dans les CP; et (b) à la demande du Client, lui fourniront la preuve que cette assurance a bien été prise et maintenue et que les primes ont bien été réglées.



3.5 Actions des Consultants Nécessitant l'Approbation Préalable du Client

Les Consultants obtiendront par écrit l'approbation préalable du Client avant de:

- (a) sous-traiter l'exécution d'une partie des Prestations;
- (b) nommer les membres du Personnel non identifiés à l'Annexe B (Personnel clé et Sous-traitants);
- (c) prendre toute autre mesure spécifiée dans les CP.

3.6 Obligations en Matière de Rapports

Les Consultants soumettront au Client les rapports et documents indiqués dans l'Annexe A ci-après, dans la forme, le nombre et les délais indiqués dans cette Annexe.

3.7 Propriété des Documents Préparés par les Consultants

Tous les plans, dessins, spécifications, études, rapports, autres documents et logiciels, soumis par les Consultants pour le compte du Client en application de la Clause 3.6 du présent Contrat, deviendront et demeureront la propriété du Client, et les Consultants les remettront au Client avant la résiliation ou l'achèvement du présent Contrat, avec l'inventaire détaillé correspondant. Les Consultants pourront conserver un exemplaire des documents et logiciels. Toute restriction pouvant concerner leur utilisation à une date ultérieure sera, le cas échéant, indiquée dans les CP.

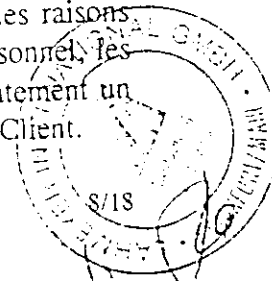
4. Personnel des Consultants et Sous-Traitants

4.1 Description du Personnel

Les titres, les positions, les qualifications minimales et la durée estimative consacrée à l'exécution des Prestations par les membres clés du Personnel des Consultants sont décrits dans l'Annexe B. Les membres clés du Personnel et les Sous-traitants dont le nom et le titre figurent à l'Annexe B sont approuvés par le Client en application du présent Contrat.

4.2 Retrait et/ou Remplacement du Personnel

- (a) Sauf dans le cas où le Client en aura décidé autrement, aucun changement ne sera apporté au Personnel clé. Si, pour des raisons indépendantes de la volonté des Consultants, il s'avère nécessaire de remplacer un des membres clés du Personnel, les Consultants fourniront une personne de qualification égale ou supérieure.
- (b) Si le Client (i) découvre qu'un des membres du Personnel s'est rendu coupable d'un manquement sérieux ou est poursuivi pour crime ou délit, ou (ii) a des raisons suffisantes de n'être pas satisfait de la performance d'un membre du Personnel, les Consultants devront, sur demande motivée du Client, fournir immédiatement un remplaçant dont les qualifications et l'expérience seront acceptables au Client.



- (c) Les Consultants ne pourront soumettre des demandes de paiement au titre des coûts supplémentaires résultant du retrait et/ou remplacement du Personnel.

5. Obligations du Client

5.1 Assistance et exemptions

Le Client fera son possible pour que le Gouvernement fournisse aux Consultants l'assistance et les exemptions indiquées dans les CP.

5.2 Changements réglementaires

Si, après la date de signature du présent Contrat, le Droit applicable aux impôts et taxes est modifié, et qu'il en résulte une augmentation ou une diminution des coûts des Prestations des Consultants, la rémunération et les dépenses remboursables payables aux Consultants augmenteront ou diminueront par accord entre les Parties, et les montants indiqués à la Clause 6.2 (a) ou (b), selon le cas, seront ajustés en conséquence.

5.3 Services et installations

Non applicable.

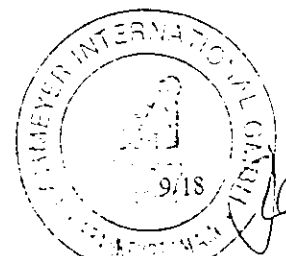
6. Paiements Versés aux Consultants

6.1 Rémunération Forfaitaire

La rémunération totale du Consultant n'excédera pas le Montant du Contrat et sera un montant forfaitaire couvrant la totalité des coûts du Personnel, des Sous-traitants, d'imprimerie, de communications, de déplacement, de logement et autres coûts similaires encourus par les Consultants dans le cadre de l'exécution des Prestations décrites à l'Annexe A. Sauf dispositions contraires de la Clause 5.2, le Montant du Contrat ne pourra être porté à un niveau supérieur aux montants indiqués à la Clause 6.2 que si les Parties sont convenues de paiements supplémentaires conformément à la Clause 2.4.

6.2 Montant du Contrat

- (a) Le montant payable en devises est indiqué dans les CP.
- (b) Le prix payable en monnaie nationale est indiqué dans les CP.



6.3 Paiement de Prestations Supplémentaires

Aux fins de la détermination de la rémunération due au titre des Prestations supplémentaires dont il pourra avoir été convenu conformément aux dispositions de la Clause 2.4, une ventilation du prix forfaitaire est donnée à l'annexe C.

6.4 Conditions des Paiements

Les paiements seront versés au compte des Consultants sur la base du calendrier présenté dans les CP. A moins que les CP n'en disposent autrement, le premier paiement sera effectué sur présentation par les Consultants d'une garantie bancaire d'un même montant, et restera valide pour la période indiquée dans les CP. Tous les autres paiements seront effectués une fois que les conditions posées dans les CP pour ces paiements auront été remplies et que les Consultants auront présenté au Client une facture indiquant le montant dû.

6.5 Intérêts dus au Titre des Paiements en Retard

Si le Client n'a pas effectué le paiement prévu dans un délai de quinze (15) jours à dater de la date du paiement indiquée dans les CP, des intérêts seront versés aux Consultants pour chaque jour de retard au taux indiqué dans les CP.

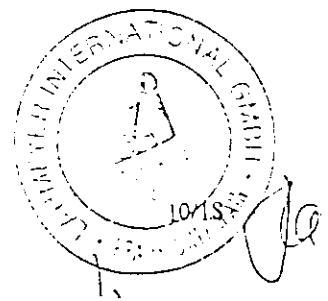
7. Règlement des Différends

7.1 Règlement amiable

Les Parties feront de leur mieux pour régler à l'amiable les différends qui pourraient surgir de l'exécution du présent Contrat ou de son interprétation.

7.2 Règlement des différends

Tout différend qui pourrait s'élever entre les Parties en raison des dispositions contractuelles et qui ne pourrait être réglé à l'amiable dans les trente (30) jours suivant la réception par l'une des Parties de la demande par l'autre Partie d'un règlement amiable sera soumis à un règlement par l'une ou l'autre des Parties conformément aux CP applicables.



III- CONDITIONS PARTICULIERES DU CONTRAT

Modifications et Compléments apportés aux Clauses
des dispositions générales du Contrat

1- Dispositions générales

Le mandataire du groupement est: LAHMEYER INTERNATIONAL GmbH

1.3 Langue

Le Français et/ou l'Anglais sont les langues utilisées.

1.4 Notification

Les adresses sont les suivantes:

Client	:	CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION (CDR)
A l'Attention de	:	M. Nabil A. EL-JISR, Président
Téléphone	:	(961-1) 98.14.31-2 / 98.12.53 / 64.39.80-1
Télécopie	:	(961-1) 86.44.94 / 64.79.47
Consultant	:	LAHMEYER INTERNATIONAL GmbH
A l'Attention	:	M. HAMPEL Hans Joachim
Téléphone	:	(49) 6102.206.110
Télécopie	:	(49) 6102.206.203
Adresse	:	Niederrad - Lyoner Strasse 22 DG0528 Frankfurt am Main

1.6 Représentation désignée

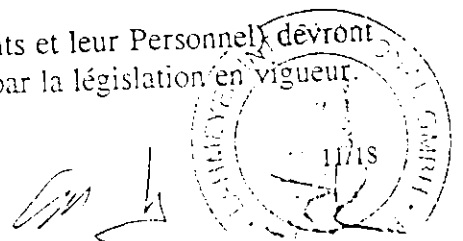
Les représentants habilités sont:

Pour le Client: M. Nabil A. EL-JISR, Président du CDR ou son représentant autorisé.

Pour les Consultants: M. HAMPEL Hans Joachim, représentant autorisé du Consultant.

1.7 Impôts et taxes

Les Consultants et leur Personnel (ainsi que les Sous-traitants et leur Personnel) devront payer tous impôts, droits, taxes et autres charges imposés, par la législation en vigueur.



2- Commencement, Execution, Amendement

2.1 Entrée en vigueur du Contrat

La date d'entrée en vigueur du Contrat sera effective quand les conditions suivantes seront remplies:

- (i) le contrat a été approuvé par le Conseil d'Administration du CDR;
- (ii) le contrat est signé par les deux parties;
- (iii) le contrat est notifié par écrit au Consultant;
- (iv) les droits de timbres de 3% ont été payés par le Consultant au Ministère des Finances;
- (v) le ou les contrats d'exploitation du service public ont été notifiés à l'Entrepreneur par le CDR.

2.2 Commencement des prestations

La période considérée du contrat est d'une année calendaire, renouvelable par notification écrite émise par le CDR, soixante (60) jours avant la fin du contrat.

La date de commencement des prestations est effective 15 jours après la date d'entrée en vigueur du Contrat, afin de considérer la mobilisation des effectifs de la mission.

2.3 Achèvement du Contrat

Le CDR notifiera le Consultant de l'achèvement de son contrat, soixante (60) jours avant la fin de l'exercice en cours. Le Consultant remettra les rapports de fin d'exercice, tels que demandés dans les termes de référence (Annexe A), dans les 30 jours après la fin de la période considérée.

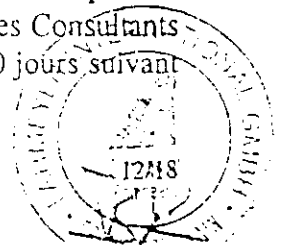
3- Obligations des Consultants

3.2 Interdiction d'activités compatibles

Pendant les deux ans qui suivront la date d'expiration du présent Contrat, les Consultants, Sous-traitants et Personnel ne devront s'engager ni dans l'acquisition (directe ou indirecte) des actifs pour lesquels ils auront fourni des conseils au Client dans le cadre du présent Contrat, ni dans la fourniture (directe ou indirecte) de conseils aux acquéreurs potentiels de ces actifs.

3.4 Assurance à la charge des Consultants

Les Consultants souscriront, maintiendront, et feront en sorte que leurs Sous-traitants souscrivent et maintiennent (ou au frais des Sous-traitants, le cas échéant) à leurs frais, mais conformément aux termes et conditions approuvées par le Client, des polices d'assurance suivantes: une assurance pour les véhicules utilisés par le Consultant, une assurance contre tiers, une assurance professionnelle en cas d'absence de contrôle par un bureau de contrôle technique, une assurance couvrant les accidents de travail, et une assurance contre les dommages subis par les équipements financés au titre du présent contrat, les biens utilisés et les documents préparés par les Consultants. Les Consultants devront présenter au CDR, ces polices d'assurances dans un délai de 20 jours suivant la notification du contrat.



3.7 Propriété des documents préparés par les consultants

Les Consultants ne pourront utiliser les documents à des fins sans rapport avec le présent Contrat, sans autorisation préalable écrite du Client.

5- Obligations du Client

5.1 Assistance et exemptions

Sans objet.

5.3 Services et installations

Sans objet.

6- Paiements versés aux Consultants

6.2 Montant du Contrat

Excepté aux cas où il en aurait été convenu autrement entre les Parties, les paiements seront libellés en USD Dollars.

- i) Le montant global de la rémunération forfaitaire du contrat est de 346.290 USD/AN (Trois cent quarante six mille deux cent quatre vingt dix Dollars Américains);
- ii) Cette rémunération forfaitaire inclut toutes les dépenses salariales et frais annexes nécessaires à l'exécution de la mission de surveillance des travaux de l'ensemble du projet et à la bonne fin du contrat telle que décrite dans les termes de références en Annexe A.
- iii) La rémunération forfaitaire est basée sur un montant prévisionnel de travaux de 18.000.000 USD et correspond aux effectifs (H/mois) mis en place pour la surveillance des contrats d'exploitation.

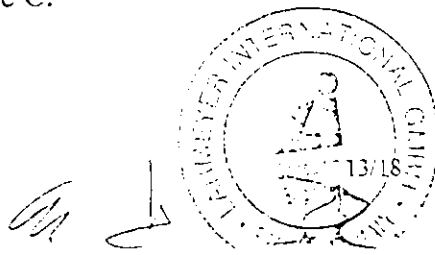
6.4 Nature et Conditions des paiements - Cautions

Les paiements seront versés en devises au compte suivant:

Banque	:	DEUTSCHE BANK AG
Adresse	:	ROSSMARKT 18, 60311 Frankfurt Main
N° de compte	:	09 40312
Code Guichet	:	50070010

a) Nature des paiements

- (i) Le Client réglera aux Consultants la rémunération définie à la Clause 6.2 sur présentation d'une facture mensuelle.
- (ii) Les honoraires mensuels du Consultant seront calculés sur la base 1/12^{ème} du forfait annuel en référence aux montants applicables sur les différentes régions telles que décrites dans l'offre de prix en Annexe C.



b) Conditions de paiement

La facturation et les paiements effectués au titre des Prestations seront effectués comme suit:

(i) Dans les quarante cinq (45) jours suivant la Date de mise en vigueur, le Client versera aux Consultants une avance de dix pour cent (10%) de la rémunération globale des Consultants, cette rémunération étant calculée en pourcentage du coût estimatif du projet. Cette avance sera versée après constitution par les Consultants d'une garantie bancaire émise par une Banque Libanaise agréée et adressée au Client et qui devra rester valide jusqu'à ce que: (i) l'avance ait été entièrement remboursée par déduction sur chaque facturation de 20% des sommes dûes au Consultant, et (ii) sous une forme approuvée par le Client (voir modèle en Annexe 1).

(ii) Retenue de garantie de bon achèvement de la mission:

La retenue de garantie de bon achèvement de la mission est composée de deux parties:

- Un cautionnement définitif d'un montant de dix pour-cent (10%) du montant des honoraires du consultant définis au paragraphe 6.2 (i). Ce cautionnement, sous forme de caution bancaire de garantie, sera à remettre au Client dans les 15 jours qui suivent la signature du contrat. Elle sera conforme au modèle de "garantie de bon achèvement des Etudes" présenté en annexe 2. Cette caution sera rendue au Consultant à l'achèvement de ses prestations et suivant les conditions du dernier paiement.
- Une retenue de garantie de bon achèvement des travaux d'un montant de cinq pour-cent (5%) du montant des honoraires sera déduite de chaque paiement au Consultant (exception faite de l'avance de paiement). Cette retenue sera rendue au Consultant à l'achèvement de son Contrat, suivant les conditions du dernier paiement.

(iii) Modalité de la facturation

La facturation et les paiements effectués au titre des Prestations seront effectués comme suit:

(a) Dans les quarante cinq (45) jours suivant la Date de mise en vigueur, le Client versera aux Consultants une avance de dix pour cent (10%) de la rémunération globale des Consultants, cette rémunération étant calculée en pourcentage du coût estimatif du projet. Cette avance sera versée après constitution par les Consultants d'une garantie bancaire émise par une Banque Libanaise agréée et adressée au Client et qui devra rester valide jusqu'à ce que: (i) l'avance ait été entièrement remboursée par déduction sur chaque situation de travaux de 20% des paiements dûs au Consultant, et (ii) sous une forme approuvée par le Client (voir modèle en Annexe 1).

[Signature]



- (b) Aussitôt que possible et au plus tard dans les quinze (15) jours suivant la fin de chaque mois calendaire au cours de l'exécution des Prestations, les Consultants soumettront au Client, en double exemplaire, la facture conformément aux dispositions des Clauses 6.4 pour le mois en question.
- (c) Le Client mandatera les sommes correspondant aux relevés mensuels des Consultants dans les soixante (60) jours suivant la réception de ces relevés des pièces justificatives correspondantes par le Client. Seul le paiement de la partie du relevé mensuel qui n'est pas correctement justifiée pourra être différé. S'il apparaît une différence entre les paiements réellement effectués et les dépenses qui auraient été autorisées, le Client pourra inclure la différence correspondante dans les paiements suivants.
- (d) Le dernier paiement effectué au titre de la présente Clause ne pourra être effectué qu'après remise des documents finaux: "comptes définitifs" de l'exercice. Le Client notifiera le Consultant des insuffisances qu'il aurait relevées dans l'exécution et la rédaction des documents définitifs. Le ou les Exploitants apporteront immédiatement les corrections ou amendements nécessaires dans un délai de trente (30) jours. Si dans un délai de trente jours l'Exploitant n'exécute pas les corrections ou amendements, les Consultants confirmeront les insuffisances, et les prestations du Consultant seront réputées achevées, libérant les retenues de garantie de bon achèvement de la mission. Tout montant que le Client aurait payé au delà des montants sur lesquels les parties seraient d'accord par écrit conformément aux dispositions du présent Contrat seraient remboursés au Client par les Consultants dans les trente (30) jours suivant notification aux Consultants.

6.5 Intérêts dus au titre des paiements de retard

Sans objet.

7- Règlement des différends

- 7.2 Tout différend, controverse ou réclamation dû ou lié au présent Contrat, ou la rupture, résiliation ou l'invalidité dudit Contrat, seront soumis à arbitrage conformément aux règles du code de procédure libanais et conformément à la loi du Contrat.

SM



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

**MODELE DE LA GARANTIE DE
RESTITUTION D'ACOMPTE**

ANNEXE 1

MAI 1998



MODELE DE LA CAUTION DE RESTITUTION D'ACOMPTE

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION
Tallet El Serail
B.P. 116/5351
Beyrouth, Liban

Messieurs,

Nous avons l'honneur de vous informer que par la présente, nous garantissons auprès du Conseil du Développement et de la Reconstruction (CDR)

la Société _____,

Adresse _____

Siège Social _____

ci-après désignée par le "Société",

conjointement et solidairement avec elle comme Débiteur principal et non seulement comme Assureur pour un montant maximum de:

USD _____ (_____), ce montant représentant le cautionnement de l'acompte à la commande de 10% de la valeur des prestations prévues dans le contrat signé entre le CDR et la Société en date du _____ et dont l'objet est l'exécution de la mission de surveillance des contrats d'exploitation du service public du projet REGION N°2: LIBAN SUD.

Cet acompte sera versé au crédit de la Société auprès de la Banque _____
N° de compte _____, à la réception par le CDR de l'originale de la présente caution.

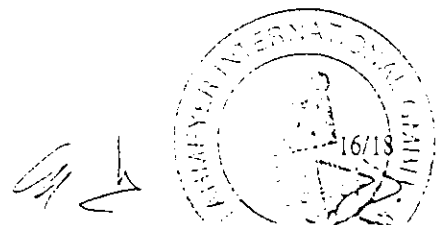
Au cas où, selon l'avis du CDR, la Société ne remplirait pas ses obligations contractuelles et par conséquent devrait restituer l'acompte reçu, nous nous engageons par la présente à payer à la première demande du CDR et sans argutie ni discussion, toute somme due par la Société en vertu dudit contrat jusqu'à la concurrence d'un montant de _____ USD (_____
_____).

La défaillance de la Société devra nous être communiquée par écrit. Une copie de cette lettre devra du fait même être envoyée à la Société.

La présente caution entrera en vigueur à la date même du versement de l'acompte au crédit de la Société et deviendra caduque d'office, selon les conditions prévues à l'article 6.4 des C.P.dudit contrat.

DATE:

SIGNATURE DE LA BANQUE:



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

**MODELE DE LA CAUTION DE BONNE
EXECUTION DE LA MISSION**

ANNEXE 2

MAI 1998

M *J*



MODELE DE LA CAUTION DE BONNE EXECUTION DE LA MISSION

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

Tallet El Serail

B.P. 116/5351

Beyrouth, Liban

Messieurs,

Nous avons l'honneur de vous informer que par la présente, nous garantissons auprès du Conseil du Développement et de la Reconstruction (CDR)

la Société _____,

Adresse _____

Siège Social _____

ci-après désignée par le "Société",

conjointement et solidairement avec elle comme Débiteur principal et non seulement comme Assureur pour un montant maximum de:

USD _____ (_____), ce montant représentant le cautionnement de l'acompte à la commande de 10% de la valeur des prestations prévues dans le contrat signé entre le CDR et la Société en date du _____ et dont l'objet est l'exécution de la mission de surveillance des contrats d'exploitation du service public du projet REGION N°2: LIBAN SUD.

Cet acompte sera versé au crédit de la Société auprès de la Banque _____
N° de compte _____, à la réception par le CDR de l'originale de la présente caution.

Au cas où, selon l'avis du CDR, la Société ne remplirait pas ses obligations contractuelles et par conséquent devrait restituer l'acompte reçu, nous nous engageons par la présente à payer à la première demande du CDR et sans argutie ni discussion, toute somme due par la Société en vertu dudit contrat jusqu'à la concurrence d'un montant de _____ USD (_____
_____).

La défaillance de la Société devra nous être communiquée par écrit. Une copie de cette lettre devra du fait même être envoyée à la Société.

La présente caution entrera en vigueur à la date même du versement de l'acompte au crédit de la Société et deviendra caduque d'office, selon les conditions prévues à l'article 6.4 des C.P.dudit contrat.

DATE:

SIGNATURE DE LA BANQUE:

MA
↓



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

DETAIL DES ASSURANCES

ANNEXE 3

MAI 1998



DETAIL DES ASSURANCES

Les assurances dont le Consultant devra justifier sont les suivantes:

- a) Assurance au tiers pour les véhicules étant utilisés au Liban par le Consultant, son personnel ou ses sous-traitants et leur personnel, couvrant un minimum de 50.000 US\$.
- b) Assurance au tiers, avec une couverture minimale de 200.000 US\$.
- c) Assurance professionnelle si existante, ou qui peut être abandonnée si l'assistance d'un bureau de contrôle technique (approuvé par le CDR) est mise en place.
- d) Assurance patronale et assurance couvrant les accidents du travail du personnel des consultants et de leurs sous-traitants, conformément aux dispositions légales en vigueur, et assurance vie, maladie, voyage ou autres, comme il conviendra.
- e) Assurance contre les pertes ou dommages subis par (i) les équipements financés en totalité ou en partie au titre du présent Contrat, (ii) les biens utilisés par les consultants et (iii) les documents préparés par les consultants au cours de l'exécution de leurs prestations.

[Signature]

[Signature]



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

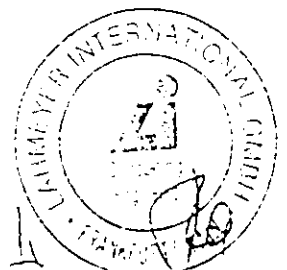
MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

TERMES DE REFERENCES

ANNEXE A

MAI 1998



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ANNEXE A

TERMES DE REFERENCES

1- GENERALITE

Le Conseil du Développement et de la Reconstruction (CDR) a développé un vaste programme de réhabilitation des infrastructures sur l'ensemble du territoire libanais à travers divers financements internationaux.

Depuis 1992, plusieurs consultants ont été appointés pour développer un programme de projets dans le cadre du NERP et ERP, financé et garanti par la Banque Mondiale (BIRD).

Les études de faisabilité ont confirmé les choix technico-financier adaptés au pays et ont permis de promouvoir une législation institutionnelle définissant les règles gouvernementales à appliquer dans un plan directeur régional et/ou national.

Dans le domaine des déchets urbains, le CDR a confirmé un vaste programme de travaux étendu sur l'ensemble du territoire libanais et envisage le transfert de propriété entre les Entrepreneurs et les futurs exploitants afin d'entreprendre les mises en services industrielles des installations et satisfaire le service public de la collecte des déchets urbains et leur élimination par traitements particuliers.

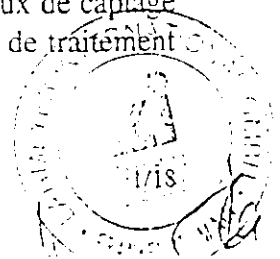
2- DEFINITION DU PROGRAMME DES OPERATIONS MISES EN EXPLOITATION

En référence au programme global des travaux attribués aux différents Entrepreneurs, le transfert de propriété des installations entre l'Entrepreneur et l'Exploitant est envisagé dans les meilleurs délais suivant la planification des réceptions de travaux des différents projets régionaux.

2.1 Etendue de la Mission

Ces contrats d'exploitation définissent le rôle et les devoirs des Exploitants dans l'utilisation et l'Entretien des équipements et des installations mises à disposition pour développer les services opérationnels publics suivants:

- i) La mise en service des décharges contrôlées par zones géographiques, devant satisfaire:
 - l'enfouissement des déchets urbains dans les alvéoles;
 - l'entretien des bâtiments et des voiries, espaces verts et aménagement du terrain;
 - la maintenance des véhicules mobiles nécessaires à l'enfouissement des déchets urbains dans les alvéoles et des équipements composant les chaînes de tri et de conditionnement des produits recyclables;
 - la mise en place des complexes d'étanchéité des alvéoles et des réseaux de captage des lixiviats et des gaz, complétée par la maintenance des installations de traitement si nécessaire;



- le suivi des terrassements, remblais, mouvement de terre pour satisfaire les extensions nécessaires à la création de nouvelles alvéoles.
- ii) La mise en service des stations de transfert, devant satisfaire:
- l'entretien des ouvrages composant: la station, les voiries, les espaces verts et l'aménagement du terrain;
 - la maintenance des véhicules mobiles et des équipements annexes type compacteurs de déchets.
- iii) La mise en service des unités de tri implantées selon les besoins sur l'aire de décharge ou sur la station de transfert, devant satisfaire:
- la maintenance des équipements mécaniques et électroniques spécialisés pour le procédé de Tri sélectifs des différents produits et sous produits issus des déchets.
- iv) La mise en exploitation du service de collecte des déchets urbains devant satisfaire:
- l'utilisation et l'entretien des véhicules de collectes de différentes capacités;
 - l'utilisation et l'entretien des bacs roulants de différentes capacités;
 - l'utilisation et l'entretien des véhicules spécialisés dans certaines tâches particulières de collecte (objets encombrants, gravats, porte-containers ...).
- v) La mise en exploitation du service de nettoyage de la voirie, devant satisfaire:
- l'entretien et la maintenance des véhicules de ramassage des souillures urbaines;
 - l'entretien des corbeilles à papier;
 - la maintenance et l'utilisation des véhicules balayeuses/arroseuses automatiques.
- vi) La mise à disposition des bâtiments administratifs et des garages nécessaires aux opérations d'exploitation du service, devant satisfaire:
- l'entretien des bâtiments, des garages et la maintenance des équipements fonctionnels;
 - l'entretien des voiries et réseaux divers, espaces verts et aménagement du terrain.

2.2 Financement du Projet

Les travaux des ouvrages ont été financés par la Banque Mondiale (BIRD), dans le cadre de la mission de surveillance des travaux des ouvrages et des fournitures du Projet, le CDR assurera le financement du programme avec des fonds propres du Gouvernement.

2.3 Définition de la mission de surveillance

Cette mission aura pour but le contrôle permanent des prestations de service de l'exploitant en respect des contrats sélectionnés dans les divers rôles tels que décrits au chapitre 2.1 et confirmer les obligations, la gestion financière et les résultats analytiques en découlant et ce pour chaque exercice du contrat.

2.4 Répartition des zones des contrats

Le projet est réparti sur deux régions:

- REGION N°1: Contrats exécutés par les sociétés d'exploitation couvrant les sous régions suivantes:
 - LIBAN NORD: KOURA - AKKAR - TRIPOLI
 - BEKAA: BAALBECK - ZAHLE - BEKAA GHARBI
 - MONT LIBAN: JBEIL

- REGION N°2: Contrats exécutés par les sociétés d'exploitation couvrant les sous régions suivantes:
 - LIBAN SUD: SAIDA - TYR - NABATIYEH - BINT JBEIL - HASBAYA (Zones occupées).

Note Importante: Pour les régions situées dans la zone occupée, le CDR se réserve le droit de supprimer ou de reporter la mission du Consultant.

2.5 Dossiers disponibles

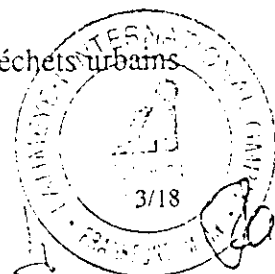
Les documents contractuels des contrats des sociétés d'exploitation seront fournis au Consultant dès l'attribution du marché en référence à la planification des réceptions "fin de travaux" des différents projets régionaux. La répartition des contrats est la suivante:

- LOT N°1: Exploitation des décharges contrôlées et du TRI des déchets urbains;
- LOT N°2: Exploitation du service de la collecte des ordures ménagères et du nettoyage de la voirie y compris les stations de transfert.

3- ETUDE D'OPTIMISATION DE L'EXPLOITANT

Chaque société présentera une étude d'optimisation concernant la prestation du service public à mettre en place dans la zone géographique concernée à partir des bases de données décrites dans le contrat d'exploitation. Les objectifs ciblés pour la définition de cette étude seront les suivants:

- Présenter les découpages sectoriels du service suivant les zones du projet;
- Evaluer la population desservie par secteur et estimer les quantités de déchets urbains à collecter et générées par chaque zone;



- Effectuer la distribution des bacs roulants et autres équipements à mettre en place pour satisfaire le service de collecte et de nettoyage;
- Visualiser les parcours des véhicules de collecte en précisant les horaires, les distances, les rotations des véhicules de collecte, de nettoyage et de transfert si nécessaire;
- Préciser les destinations des déchets au centre d'enfouissement régional et évaluer le tri des produits recyclés;
- Analyser les différents composants des déchets ménagers et urbains afin d'inventorier les choix préférentiels des produits recyclables;
- Justifier les notes de calculs confirmant les divers choix fonctionnels.

Cette étude sera vérifiée et approuvée par le Consultant, la méthodologie de travail ainsi définie sera appliquée sans dérogation par l'Exploitant dès le démarrage du contrat. Une mise à jour sera effectuée chaque trimestre en fonction des adaptations pratiques constatées sur le terrain en vue de l'amélioration du service public sans prétendre pour autant à une quelconque modification du contrat de base de l'Exploitant.

4- OBJECTIFS DE LA MISSION DE SURVEILLANCE

Les principaux objectifs de la mission du Consultant porteront sur les tâches suivantes:

- s'assurer que l'exécution des services est conforme aux prescriptions du ou des contrats d'exploitation suivant les études d'optimisation ayant pour référence les différentes opérations de collecte, de transfert, de nettoyage et de triage des déchets, le recyclage des sous produits pour la mise en décharge des déchets ultimes;
- s'assurer que les documents qui doivent être produits par l'Exploitant, en application du ou des contrats de prestations de service citées en référence sont conformes au dit contrat et ne comportent ni erreur, ni omission, ni contradiction normalement décelable par un expert spécialisé pour ce contrôle;
- délivrer tous les ordres de service et établir les procès verbaux nécessaires à la bonne exécution du ou des contrats d'exploitation ainsi que procéder aux constats contradictoires si nécessaires;
- informer systématiquement le CDR sur l'état de fonctionnement des services et préciser les litiges ou incohérences des différents systèmes à l'appui des contrôles pondéraux;
- s'assurer que les règles contractuelles en matière: de protection de l'Environnement, de sécurité du personnel, de l'hygiène du service et du domaine public sont respectées;
- d'établir les statistiques trimestrielles sur les bilans en matière de quantité et qualité des déchets urbains collectés par l'Exploitant et préciser leurs répartitions selon le mode de tri et le mode d'élimination;

- contrôler les diverses analyses contractuelles effectuées sur les différents sites en matière de pollution pour garantir la protection de l'Environnement;
- vérifier la facturation des décomptes mensuels de chaque secteur, établir les états financiers trimestriels et de fin d'exercice, confirmer le bilan fin d'exercice pour le décompte général de fin de Contrat;
- donner un avis particulier au CDR sur les réserves éventuellement formulées par l'Exploitant lors des exercices en cours et assister le CDR, le cas échéant lors des litiges opérationnels concernant les tâches contestées et instruire les mémoires de réclamations émis par l'Exploitant.

5- CONSISTANCE DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

5.1 Collecte des déchets urbains

Le Consultant devra contrôler toute la chaîne opérationnelle justifiant le ramassage des déchets, le tri et le recyclage des sous produits et l'élimination finale des déchets ultimes non commercialisable.

Le Consultant assurera un suivi des droits et des devoirs de l'Exploitant dans le rôle opérationnel des secteurs suivants:

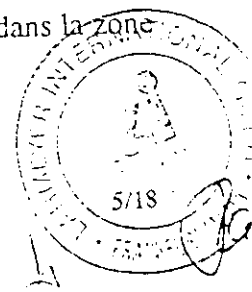
- VEHICULES COLLECTE DES DECHETS MENAGERS ET URBAINS

Les contrôles pondéraux porteront sur les tâches suivantes:

- Contrôler le respect des horaires, des itinéraires, du nombre de rotations des véhicules de collecte et de transfert;
- Vérifier les principales applications des règles de sécurité et d'hygiène concernant l'utilisation des véhicules de collecte et de transfert;
- Etablir des fiches techniques de contrôle de l'état des véhicules afin d'entreprendre une maintenance préventive et respecter l'image "qualité" représentative du service public;
- Contrôler les règles d'entretien et d'utilisation des véhicules en respect des garanties des Constructeurs et des règlements de circulation internationaux;
- Effectuer les sondages sur les qualités d'ordures ménagères, ramasser avec les véhicules compacteurs afin d'éviter une dégradation prématurée des compacteurs.

- BACS ROULANTS ET CONTAINERS

- Vérifier la position des bacs mis en place et contrôler leur efficacité dans la zone concernée, évaluer les besoins pour satisfaire un rendement optimal;

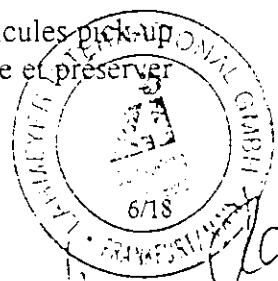


- Vérifier les principales applications des règles de sécurité et d'hygiène concernant l'utilisation des bacs roulants et autres containers;
 - Etablir des fiches techniques de contrôle de l'état des bacs afin d'entreprendre une maintenance préventive sur place ou une mise en dépôt pour gros entretien;
 - Effectuer les sondages particuliers pour identifier l'utilisation des bacs et établir les constats de vols ou de vandalisme si existants;
 - Inventorier la mise à feu des ordures ménagères dans les bacs pour pénaliser l'Exploitant sur le manquement de sa tâche;
 - Contrôler les abords immédiats des bacs roulants et des containers pour appuyer le respect de la propreté du domaine public;
 - Contrôler l'état et la propreté des bacs pour la bonne image du service public.
- PERSONNELS ROULANTS
 - Contrôler que le personnel opérationnel est équipé des effets vestimentaires garantissant l'hygiène et la sécurité des personnes (chauffeurs, ripeurs);
 - Contrôler le nombre de ripeurs par véhicules afin de satisfaire le ramassage des déchets dans les conditions optimales du Contrat.

5.2 Surveillance du nettoyage de la voirie

Les contrôles pondéraux porteront sur les tâches suivantes:

- Contrôler que les effectifs des ouvriers opérationnels sont suffisants pour effectuer le programme de nettoyage et s'assurer que le personnel est équipé des effets vestimentaires et des outils de travail conformes aux besoins et aux règles d'hygiène et de sécurité;
- Contrôler le respect des horaires de la prestation de service suivant l'affectation des équipes et le secteur attribué;
- Vérifier les équipements et matériels mise à la disposition du personnel pour satisfaire les conditions de travail;
- Effectuer les contrôles pondéraux concernant l'hygiène et la propreté de la voirie dans le respect des clauses du contrat;
- Evaluer la répartition des souillures urbaines et les déchets solides ramassés dans le contexte;
- Etablir les fiches techniques d'utilisation et de contrôle de l'état des véhicules pick-up et balayeuses automatiques afin d'entreprendre une maintenance préventive et préserver une image de marque du service public.



5.3 Surveillance des stations de transfert

Les contrôles pondéraux porteront sur les tâches suivantes:

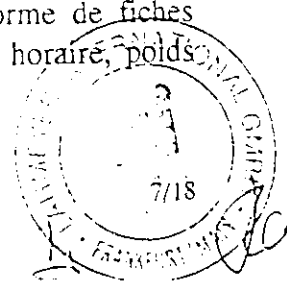
- Contrôler la pesée des déchets, à l'entrée et à la sortie de la station et confirmer les rotations des véhicules;
- Vérifier l'hygiène et la sécurité des installations afin d'éviter toutes nuisances (bruits, odeurs) auprès des riverains et satisfaire la protection de l'environnement (envol des déchets, pollution des sols, etc...);
- Contrôler les installations techniques (compacteurs hydrauliques et autres matériels électromécanique) afin de garantir le transfert journalier des déchets vers leur lieu de traitement;
- Etablir des fiches techniques d'utilisation et de contrôle des véhicules compacteurs de transfert afin d'entreprendre une maintenance préventive;
- Assurer la maintenance des ouvrages et l'entretien des espaces verts, voirie et aménagement du terrain.

5.4 Surveillance des décharges contrôlées

Les contrôles pondéraux sur le site porteront sur les tâches suivantes:

- Contrôler la préparation des casiers selon les prescriptions techniques originales pour le respect de l'environnement (drainage, géomembrane, géotextile ...);
- Surveiller l'enfouissement des déchets et leur recouvrement suivant les méthodes et les prescriptions réglementaires du Contrat;
- Vérifier l'hygiène et la protection du site afin d'éviter toutes nuisances (bruits, odeurs) auprès des riverains et satisfaire la protection de l'environnement contre tout envol de déchets légers;
- Vérifier les procédés techniques mis en place tels que traitement des lixiviats et du Méthane en respect des prescriptions particulières du contrat;
- Provoquer les contrôles, tests et analyses contractuelles à effectuer sur le site ou en laboratoire pour confirmer la protection de l'Environnement (odeurs, eaux souterraines, envol de déchets, méthane, lixiviats ...);
- Etablir les fiches techniques d'utilisation et d'entretien des véhicules et engins mécaniques utilisés sur la décharge afin d'entreprendre une maintenance préventive de qualité;
- Contrôler la pesée des déchets à l'entrée de la décharge, sous forme de fiches informatiques précisant toutes les références de contrôle (véhicules, horaire, poids, tare/charge utile ...);

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- Assurer la maintenance des ouvrages et l'entretien des espaces verts, voirie et aménagement du terrain;
- Assurer la synthèse des prestations en respect des différents contrats dépendant du site de décharge afin d'éviter tous litiges inter-professionnels conflictuels.

5.5 Unités de triage

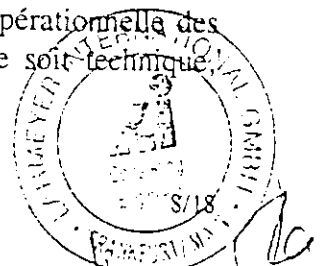
Les contrôles pondéraux sur le site porteront sur les points suivants:

- Contrôler le tri des sous produits valorisables afin de limiter les déchets ultimes mise en décharge;
- Inventorier les sous-produits recyclables et vérifier les fiches d'identification des composants (quantité, qualité ...);
- Vérifier l'hygiène et la sécurité des installations pour satisfaire les conditions de travail des ouvriers;
- Assurer la maintenance des équipements techniques, mécaniques, électromécanique des unités de tri et de conditionnement des produits recyclables;
- Assurer la maintenance des ouvrages et la protection de l'environnement afin de limiter les nuisances (odeur, envol de déchets, sécurité des utilisateurs);
- Etablir les statistiques mensuelles et/ou trimestrielles et préciser les différences notables des composants suivant les périodes saisonnières;

5.6 Bâtiments administratifs et Garages

Les contrôles pondéraux sur le site porteront sur les points suivants:

- Assurer l'entretien des bâtiments et la maintenance des équipements secondaires et techniques ainsi que l'entretien des espaces verts, voirie et aménagement du terrain;
- Vérifier l'état de stock des pièces détachées d'origine et provoquer les commandes afin d'éviter tout ralentissement de la prestation demandée;
- Contrôler la qualité des interventions mécaniques sur des véhicules afin de garantir les performances et la durée prévisionnelle des matériels dans le cadre des investissements des prévisions de renouvellement;
- Contrôler que les ouvriers sont équipés de l'outillage professionnel pour satisfaire les tâches d'entretien et de maintenance des véhicules et que les effets vestimentaires sont fournis pour les règles de protections d'hygiène et de sécurité;
- Vérifier les postes informatiques mises en place pour la gestion opérationnelle des prestations de service affectées à chaque type de contrat, qu'elle soit technique, financière ou statistique.



6- COMPTABILITE FINANCIERE DES CONTRATS

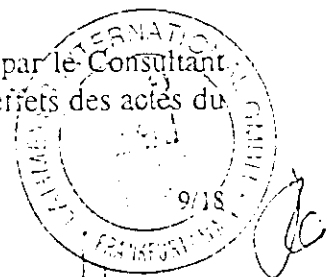
Le Consultant devra:

- Faire respecter les conditions financières de chaque contrat dans le respect du bilan général annuel, les conditions de paiement, les garanties de bonne exécution et l'application des pénalités contractuelles en cas de défaillance du contractant;
- S'assurer que les contractants honorent l'ensemble des paiements des factures dues aux différentes administrations (eau, électricité, assainissement, impôts, taxes ...) et qu'ils justifient les assurances professionnelles et patronales contractuelles garantissant les biens et les personnes dans le cadre de la prestation de service demandée;
- Vérifier la facturation mensuelle et/ou trimestrielle, présentée en respect des différents paramètres contractuels justifiant la partie fixe et la partie proportionnelle définie dans chaque contrat;
- Vérifier les mémoires des travaux supplémentaires établies par le contractant et orienter un avis au CDR pour assurer le paiement complémentaire;
- Etablir le décompte définitif de l'exercice en cours et finaliser les règles de réactualisation du contrat pour le nouvel exercice;
- Etablir le décompte définitif et préparer le règlement pour solde de tout compte en fin de contrat;
- Fournir les statistiques ayant pour relation les différents paramètres (coût des contrats/tonnes de déchets/population ...) Afin de confirmer les paramètres financiers et définir les investissements de renouvellement et/ou d'extension des équipements;
- Assister le CDR, en fin de contrat pour l'évaluation des installations et équipements rendus en respect des clauses de chaque contrat;
- Approuver le système de gestion informatisé de l'Exploitant pour satisfaire le contrôle financier et vérifier la compatibilité du système avec les logiciels du CDR.

7- OBLIGATIONS DU CONSULTANT EN MATERIELS DE RAPPORTS

Les rapports mensuels traitant les conditions d'exploitation et les méthodes de surveillance des prestations de service seront rédigées sur les bases suivantes:

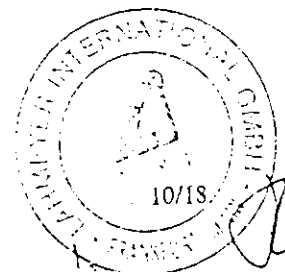
- i) L'état financier mensuel sera confirmé à l'appui des factures présentées, des cumuls des paiements effectués et des prévisions en cours d'exercice suivant les procédures du CDR;
- ii) Les constats des manquements du Contractant seront identifiés par le Consultant lors des contrôles pondéraux. Le rapport justifiera les causes et effets des actes du



Contractant dans le domaine des travaux, du service et du respect de l'environnement. Les courriers rédigés par le Consultant sur chaque sujet, seront joint au présent rapport;

- iii) Les litiges conflictuels seront identifiés et analysés par le Consultant, les recommandations seront présentées au CDR pour action et arbitrage en respect des clauses du contrat;
- iv) Les bilans analytiques, concernant la quantité, la qualité, le recyclage des déchets, l'utilisation des véhicules et toutes autres bases de données, seront présentés par le Consultant pour valoriser les statistiques et projeter les extensions des ouvrages et le renouvellement des équipements à moyen et à long terme;
- v) Les analyses contractuelles concernant l'hygiène, la sécurité et la protection de l'environnement, en particulier pour l'exploitation des décharges contrôlées. Les résultats d'analyses seront joints au rapport et ils seront commentés par le Consultant dans le cadre des responsabilités contractuelles;
- vi) a l'appui des différentes interventions du Consultant concernant la surveillance des prestations de service, le Consultant fournira les jeux de photos permettant de visualiser tous les constats des faits et effets favorables ou défavorables des actes du Contractant dans le cadre:
 - de la qualité des prestations;
 - des manquements aux prestations de service;
 - des dégradations intempestives et/ou d'une maintenance inexistante;
 - des litiges avec des tiers ou autres situations illégitimes;
 - des nuisances ou des obligations environnementales contractuelles...

Les photos seront en couleur, de format 10/15.



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

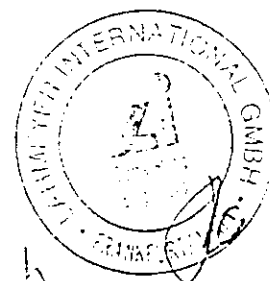
MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

**PERSONNEL CLE ET
SOUS TRAITANTS**

ANNEXE B

MAI 1998



ANNEXE B

PERSONNEL CLE ET SOUS-TRAITANTS

1- CONSTITUTION DE L'EQUIPE D'EXPERTS

La constitution de l'équipe d'experts désignée pour la surveillance des contrats d'exploitation sera structurée sur les bases suivantes:

- 1.1 Il est prévu que le Consultant doit mettre en place une équipe d'experts très expérimentés. Le Consultant devra nommer une équipe de projet ayant la compétence technique dans les domaines de la science, de l'environnement, ainsi qu'une compétence dans le domaine de la participation du secteur privé, ciblé dans le secteur des déchets solides urbains regroupant les méthodes de surveillance des contrats d'exploitation: les décharges contrôlées, le tri des déchets, la collecte des ordures ménagères et le nettoyage de la voirie urbaine. Le groupe devra fournir une planification réaliste et globale visant à justifier la forme adoptée pour le suivi des contrats, la planification et la gestion de chaque projet régional.
- 1.2 Le Consultant devra proposer et justifier la portée des différentes disciplines qui seront comprises dans l'équipe du projet. La mission est programmée pour satisfaire l'ensemble des contrats sectoriels régionaux suivant les conditions administratives particulières, définissant les prestations. Les experts devront être choisis dans les spécialités professionnelles exigées par la mission, la liste qui suit n'est pas limitative, mais doit être le support de l'équipe d'ingénieurs à mettre en place.

2- ORGANIGRAMME DES EXPERTS

La liste des experts spécialistes ci-après doit être le support de l'équipe d'ingénieurs expatriés et/ou d'ingénieurs locaux à mettre en place:

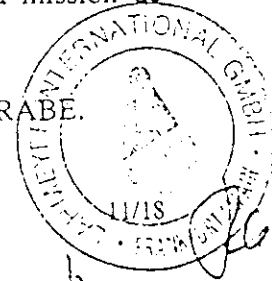
Experts techniques:

- Un chef de projet pour l'ensemble des lots;
- Ingénieur environnement;
- Ingénieur vérificateur, contrôle de prix
- Ingénieur en gestion et comptabilité financière;
- Inspecteurs qualité des prestations contractuelles
- Ingénieur électromécanique;
- Ingénieur génie civil;
- Ingénieur informatique (statistique et bilan);
- Opérateurs contrôle des pesées.

Ces Experts devront être de niveau universitaire et avoir:

- dix (10) ans d'expérience pour le personnel d'encadrement;
- cinq (5) ans pour le personnel du site, dans la spécialité relative à la mission de surveillance des travaux définie dans les termes de référence.

Les spécialistes devront parler le FRANÇAIS et/ou l'ANGLAIS et/ou L'ARABE.



3- PRESENTATION DE L'EQUIPE

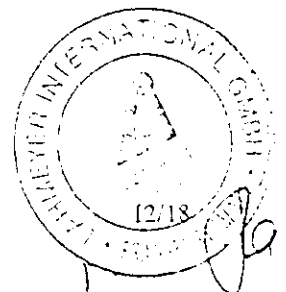
Le Consultant nommera des candidats pour participer à des rôles spécifiques au sein de l'équipe du projet et fournira les *curriculum vitae* (conformément au format suggéré annexé) et toute autre information pertinente. Le Consultant nommera le chef du projet et tous les membres-clé, et fournira l'assurance, si cette mission lui était octroyée, que tous les membres de l'équipe proposée seront disponibles tel que demandé dans le planning de la mission.

La sélection du Consultant sera basée sur l'évaluation des données techniques qui devront inclure les *curriculum vitae* de tous les membres-clé de l'équipe.

4- PRESENTATION DE L'OFFRE

Les Consultants présenteront l'équipe d'experts sous la forme suivante:

- 4.1 Les titres et les noms des experts clés et sous-traitants seront clairement annoncés dans un organigramme, une description détaillée des tâches et des qualifications minimales exigées du personnel clé étranger appelé à travailler au LIBAN, sera identifiée dans l'offre. Le nombre de mois de travail de chacun d'eux sera planifié suivant leur intervention ponctuelle dans le cadre du planning général de la mission.
- 4.2 Les mêmes informations sont demandées pour le personnel clé appelé à travailler en dehors du pays du Gouvernement, dans le cadre des tâches partielles exécutées au siège administratif du Consultant de son pays d'origine.
- 4.3 La liste des sous-traitants s'ils sont déjà connus devra être fournie dans l'offre, les mêmes informations sur le personnel clé sont demandées.
- 4.4 Les mêmes informations sont exigées pour le personnel clé local.



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

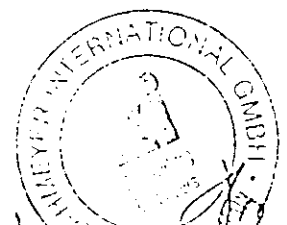
MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

**OFFRE DU PRIX FORFAITAIRE
DU CONSULTANT**

ANNEXE C

MAI 1998



PROPOSITION FINANCIERE GLOBALE

DE:

LAHMEYER INTERNATIONAL GmbH

A:

CONSEIL DU DEVELOPPEMENT
ET DE LA RECONSTRUCTION

Messieurs,

Objet: Engagement de consultants au titre du PROJET DES DECHETS SOLIDES
REGION N°2: LIBAN SUD

MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION
DU SERVICE PUBLIC

Au sujet de la proposition financière

Nous, soussignés, LAHMEYER INTERNATIONAL, avons l'honneur de vous adresser ci-joint une Proposition financière aux fins du contrat de notre firme à titre de Consultant pour l'exécution des études mentionnées ci-dessus, au montant forfaitaire de 346.290 USD (Trois cent quarante six mille deux cent quatre vingt dix Dollars Américains) dont le détail est joint en annexe.

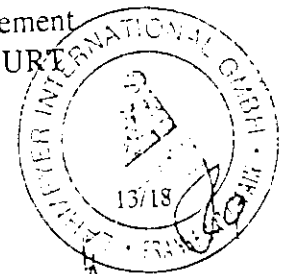
Veuillez agréer, Messieurs, l'expression de notre considération distinguée.

Signature

(Représentant autorisé)

Nom:
Titre:
Adresse:

H.J. HAMPEL
Directeur Département d'Environnement
LYONER Str 22- 60528 FRANKFURT



MANAGEMENT



POWER OF ATTORNEY

We hereby authorize

Mr. Hans-Joachim HAMPEL
(Project Director, ERM Lahmeyer International GmbH)
Holder of German Passport No. 414 4093 166


to legally represent our company in all matters concerning our Proposal for and Execution of

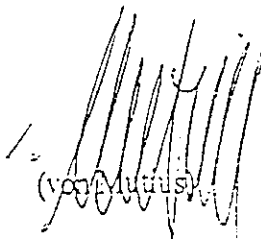
STUDY AND SUPERVISION OF CONSTRUCTION & OPERATION OF SANITARY
LANDFILLS IN LEBANON SOUTHERN AREAS AND NABATIEH

submitted to the Council for Development and Reconstruction, Beirut/Lebanon, and to negotiate and sign on our behalf and in our name any documents, required in this respect, including the Contract.

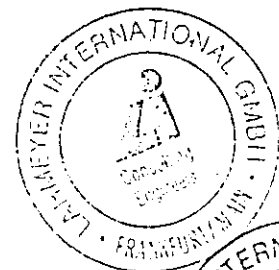
This Power of Attorney is valid until 30th June, 1999.

LAHMEYER INTERNATIONAL GMBH


(Dr. Lütkestratkötter)


(von Müllers)

Frankfurt/Main
19th May, 1998



Vorseitige vor mir als eigenhändig anerkannte Unterschriften der mir persönlich bekannten Herren

1. Dr.-Ing. Herbert Lütkestratkötter,
2. Ludwig A. von Mutius,
beide geschäftsansässig Lyoner Straße 22,
60528 Frankfurt am Main,

beglaubige ich hiermit.

Gleichzeitig bescheinige ich aufgrund Einsicht in das Handelsregister des Amtsgerichts Frankfurt am Main - HRB 7958 - vom 19.5.1998, daß die vorgenannten Herren beide Geschäftsführer der

Lahmeyer International Gesellschaft
mit beschränkter Haftung
in Frankfurt am Main

und beide Herren gemeinschaftlich zur Vertretung der Gesellschaft berechtigt sind.

Frankfurt am Main, den 22. Mai 1998

[Handwritten signature]

Notar

Kostenrechnung

Wert: DM 10.000,--

Gebühr §§ 141,32,45/1 KostO

Gebühr § 150 KostO

16 % Mehrwertsteuer

DM 20,--

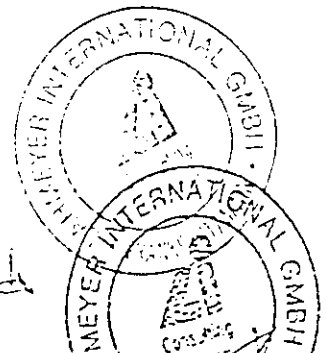
DM 20,--

DM 6,40

DM 46,40
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Notar

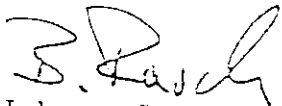


MANAGEMENT



POWER OF ATTORNEY

We hereby authorize

Mr. Bernhard Rasch 
(Project Manager, ERM Lahmeyer International GmbH)
Holder of German Passport No.400 4673 699

to legally represent our company in all matters concerning our Proposal for and Execution of

STUDY AND SUPERVISION OF CONSTRUCTION & OPERATION OF SANITARY
LANDFILLS IN LEBANON SOUTHERN AREAS AND NABATIEH

submitted to the Council for Development and Reconstruction, Beirut/Lebanon, and to
negotiate and sign on our behalf and in our name any documents, required in this respect,
including the Contract.

This Power of Attorney is valid until 30th June, 1999.

LAHMEYER INTERNATIONAL GMBH


(Dr. Lütkestratkötter)


(von Müllers)

Frankfurt/Main
19th May, 1998



CONSULTING ENGINEERS

Member of the German
Association of Engineers

Lahmeyer International GmbH
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D - 60628 Frankfurt am Main

Telephone +49 (69) 56 77-0
Fax +49 (69) 56 77-571
E-Mail li@li.de
Internet <http://www.li.de>

Managing Directors:
Dr.-Ing. Herbert Lütkestratkötter (President),
Dipl.-Kfm. Ludwig A. von Müllers, Rolf Teiler



Nummer 518 der Urkundenrolle für 1998

Vorseitige vor mir als eigenhändig anerkannte Unterschriften der mir persönlich bekannten Herren

1. Dr.-Ing. Herbert Lütkestratkötter,
2. Ludwig A. von Mutius,
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60528 Frankfurt am Main,

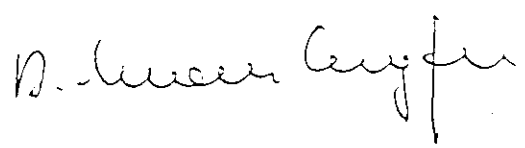
beglaubige ich hiermit.

Gleichzeitig bescheinige ich aufgrund Einsicht in das Handelsregister des Amtsgerichts Frankfurt am Main - HRB 7958 - vom 19.5.1998, daß die vorgenannten Herren beide Geschäftsführer der

Jahmeyer International Gesellschaft
mit beschränkter Haftung
in Frankfurt am Main

und beide Herren gemeinschaftlich zur Vertretung der Gesellschaft berechtigt sind.

Frankfurt am Main, den 22 . Mai 1998



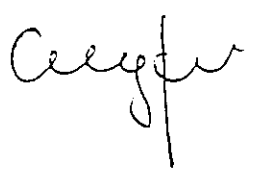
Notar

Kostenrechnung


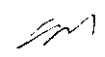
Wert: DM 10.000,--
Gebühr §§ 141,32,45/1 KostO
Gebühr § 150 KostO
16 % Mehrwertsteuer

DM 20,--
DM 20,--
DM 6,40

DM 46,40
=====



Notar



REGION: TYR

1- COÛTS DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

Pour l'exécution des obligations qui sont définies dans le terme de référence Annexe A, la rémunération du Consultant sera basée sur un coût forfaitaire suivant et soumis aux conditions de paiement du contrat.

D'après les effectifs H/Mois mis en place pour l'exécution de la mission, le montant forfaitaire à payer au Consultant est de:

a) Frais du personnel de surveillance

- Frais fixe pour les salaires du personnel de la mission: 58.870 USD

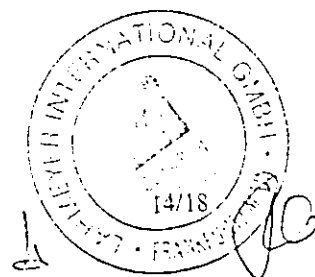
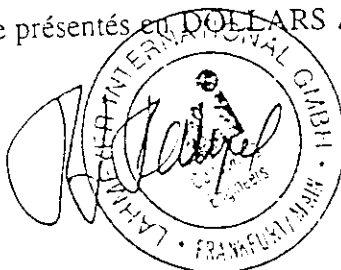
b) Frais annexes forfaitaires

- Voyage (international)	:	1.247 USD
- Hébergement, nourriture et transport	:	4.571 USD
- Bureau local si nécessaire	:	2.701 USD
- Equipements spécifiques à la mission	:	- USD
- Télécommunications -Tél, Fax, Télécom)	:	1.246 USD
- Imprimerie, photocopie, reproduction	:	623 USD
TOTAL	:	10.388 USD

c) Coût total de la prestation de la mission de surveillance

- Personnel de surveillance	:	58.870 USD
- Frais annexes	:	10.388 USD
TOTAL GENERAL	:	69.258 USD

Tous les montants devront être présentés en DOLLARS AMERICAIN.



REGION: SAIDA

1- COÛTS DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

Pour l'exécution des obligations qui sont définies dans le terme de référence Annexe A, la rémunération du Consultant sera basée sur un coût forfaitaire suivant et soumis aux conditions de paiement du contrat.

D'après les effectifs H/Mois mis en place pour l'exécution de la mission, le montant forfaitaire à payer au Consultant est de:

a) Frais du personnel de surveillance

- Frais fixe pour les salaires du personnel de la mission: 58.870 USD

b) Frais annexes forfaitaires

- Voyage (international)	:	1.247 USD
- Hébergement, nourriture et transport	:	4.571 USD
- Bureau local si nécessaire	:	2.701 USD
- Equipements spécifiques à la mission	:	- USD
- Télécommunications -Tél, Fax, Télécom)	:	1.246 USD
- Imprimerie, photocopie, reproduction	:	623 USD
TOTAL	:	<u>10.388 USD</u>

c) Coût total de la prestation de la mission de surveillance

- Personnel de surveillance	:	58.870 USD
- Frais annexes	:	10.388 USD
TOTAL GENERAL	:	<u>69.258 USD</u>

Tous les montants devront être présentés en DOLLARS AMERICAIN.



REGION: HASBAYA

1- COÛTS DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

Pour l'exécution des obligations qui sont définies dans le terme de référence Annexe A, la rémunération du Consultant sera basée sur un coût forfaitaire suivant et soumis aux conditions de paiement du contrat.

D'après les effectifs H/Mois mis en place pour l'exécution de la mission, le montant forfaitaire à payer au Consultant est de:

a) Frais du personnel de surveillance

- Frais fixe pour les salaires du personnel de la mission: 58.870 USD

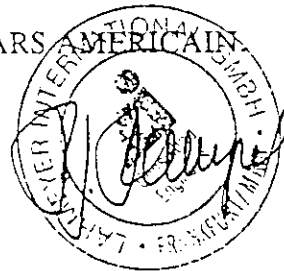
b) Frais annexes forfaitaires

- Voyage (international)	:	1.247 USD
- Hébergement, nourriture et transport	:	4.571 USD
- Bureau local si nécessaire	:	2.701 USD
- Equipements spécifiques à la mission	:	- USD
- Télécommunications -Tél, Fax, Télécom)	:	1.246 USD
- Imprimerie, photocopie, reproduction	:	623 USD
TOTAL	:	<u>10.388 USD</u>

c) Coût total de la prestation de la mission de surveillance

- Personnel de surveillance	:	58.870 USD
- Frais annexes	:	10.388 USD
TOTAL GENERAL	:	<u>69.258 USD</u>

Tous les montants devront être présentés en DOLLARS AMERICAIN



REGION: NABATIYEH

1- COÛTS DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

Pour l'exécution des obligations qui sont définies dans le terme de référence Annexe A, la rémunération du Consultant sera basée sur un coût forfaitaire suivant et soumis aux conditions de paiement du contrat.

D'après les effectifs H/Mois mis en place pour l'exécution de la mission, le montant forfaitaire à payer au Consultant est de:

a) Frais du personnel de surveillance

- Frais fixe pour les salaires du personnel de la mission: 58.870 USD

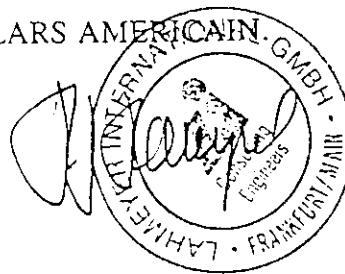
b) Frais annexes forfaitaires

- Voyage (international)	:	1.247 USD
- Hébergement, nourriture et transport	:	4.571 USD
- Bureau local si nécessaire	:	2.701 USD
- Equipements spécifiques à la mission	:	- USD
- Télécommunications -Tél, Fax, Télécom)	:	1.246 USD
- Imprimerie, photocopie, reproduction	:	623 USD
TOTAL	:	10.388 USD

c) Coût total de la prestation de la mission de surveillance

- Personnel de surveillance	:	58.870 USD
- Frais annexes	:	10.388 USD
TOTAL GENERAL	:	69.258 USD

Tous les montants devront être présentés en DOLLARS AMERICAIN



REGION: BINT-JBEIL

1- COÛTS DE LA MISSION DE SURVEILLANCE DES CONTRATS D'EXPLOITATION

Pour l'exécution des obligations qui sont définies dans le terme de référence Annexe A, la rémunération du Consultant sera basée sur un coût forfaitaire suivant et soumis aux conditions de paiement du contrat.

D'après les effectifs H/Mois mis en place pour l'exécution de la mission, le montant forfaitaire à payer au Consultant est de:

a) Frais du personnel de surveillance

- Frais fixe pour les salaires du personnel de la mission: 58.870 USD

b) Frais annexes forfaitaires

- Voyage (international) : 1.247 USD
- Hébergement, nourriture et transport : 4.571 USD
- Bureau local si nécessaire : 2.701 USD
- Equipements spécifiques à la mission : - USD
- Télécommunications -Tél, Fax, Télécom) : 1.246 USD
- Imprimerie, photocopie, reproduction : 623 USD

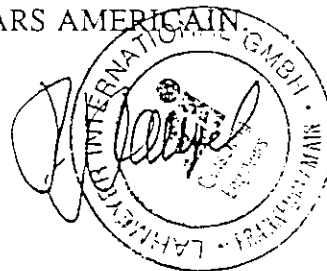
TOTAL : 10.388 USD

c) Coût total de la prestation de la mission de surveillance

- Personnel de surveillance : 58.870 USD
- Frais annexes : 10.388 USD

TOTAL GENERAL : 69.258 USD

Tous les montants devront être présentés en DOLLARS AMERICAIN



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

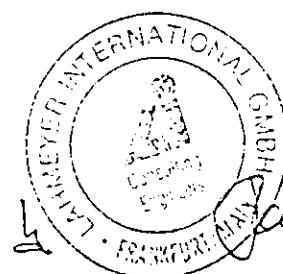
MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

METHODOLOGIE DU CONSULTANT

ANNEXE D

MAI 1998



Méthodologie

du

Consultant

PART 3: SUPERVISION OF THE OPERATION OF THE SOLID WASTE MANAGEMENT SYSTEM

5.8.1 Main Objectives and Tasks

The Solid Waste Management System consists out of:

- waste collection,
- street cleaning,
- waste transfer,
- service centres with administration buildings and garages
- waste separation and recycling
- waste disposal on sanitary landfills.

These components have to harmonises during the operation to reach an optimum performance of the whole system at lowest costs and lowest burden on the environment.

The Part 3 of the project "Supervision of the Construction" consists of the following activities:

Supervision of the Operation	
Supervision of operation of the sanitary landfills and operation of the separation units	Supervision of operation of the waste collection, street cleaning and transfer stations
Report: quarterly reports, photo documentation	
Duration: one year	

Basis for the supervision of operation are the operational contracts with the contractors/operators handed over to the Consultant by the Client. The operational contracts will be divided into two lots:

- lot 1: operation of the sanitary landfills and operation of the separation units
- lot 2: operation of the waste collection, street cleaning and transfer station

The operation companies have to prepare an optimisation study covering the following goals and tasks:

- description of the division of services in accordance to the regions
- assessment of the assigned inhabitants within the regions related to the quantity of municipal waste to be collected and the occurring waste quantity for each region
- distribution of necessary containers and other equipment within the regions to ensure the waste collection and street sweeping
- preparation of the logistical concept contain maps showing the collection routes for the collection vehicles, related (collection) time schedule, length of collection routes, required circulation of collection, cleaning/sweeping and transfer vehicles
- precision of the determination of the waste flows entering the regional landfill and assessment of possible and suitable ways of waste separation
- analysis of the composition of the municipal waste in order to determine the different kinds of recyclable and valuable materials

The optimisation studies will be checked and approved by the Consultant. The approved optimisation studies have to be used by the operators as working procedures of the operation from the beginning of their operational contracts. These working procedures will be checked quarterly if there are practical changes available to improve the services. Beside these approved practical changes the working procedures are fix.

The main goals of the supervision of the operation of the solid waste management by the Consultant are:

- Secure that the execution of waste collection, waste separation and disposal services by the operator are in accordance with the contract regulations and the optimisation studies. Regular supervision and inspection of the effective operation of waste collection and transportation.

street cleaning, waste transfer, waste separation and recycling and disposal at the sanitary landfills.

- Secure the delivery of all documents (and their determined conditions) by the operator as fixed in the contracts, that they are without mistake and gaps so that they could be easily checked. Approval of the reports prepared by the contractor of waste disposal services. Verification of the reports if there are any mistakes or discrepancies to the contractual regulations. If necessary return to the operator for revision and completion of working reports.
- Placing all instruction and preparation of minutes covering the performance of the services in accordance of the contracts, preparation of minutes for the comparison of the actual situation with the contractual conditions
- Secure a systematically information of the CDR about the performance of the services covering success and problems of operation
- Secure the minimisation of environmental burden of the solid waste management and keeping of health and safety requirements in accordance with contractual regulations. Inspection of environmental sound waste disposal in accordance with the environmental, health and safety regulations.
- Preparation of quarterly reports to inform CDR about disposal operation containing the approved working reports of the operator as well as the results of regular supervisions of waste collection and transportation, street clearing, waste transfer and the sanitary landfills.
- Control of the pollution-control investigations done by the contractor in accordance to the contract in order to ensure an environmental sound operation, control of the in-situ analysis demanded by the operational contract
- Check of the monthly statements prepared by operator of each sector, establish quarterly and annual account balances, establish financial balances at the end of the financial year and the end of the duration of the contract
- Assist the CDR in case of discrepancies concerning the service of the operators

5.8.2 Scope of the Supervision of the Operational Contracts

The operation of the Solid Waste Management in South Lebanon will be supervised by international experts of the Consultant in close co-operation with local experts. The supervision contains regular visits at the sites (e.g. landfills, transfer stations) done by local experts and the international experts of the Consultant. Furthermore spot checks and inspections will be done on irregular bases (especially in the area of street sweeping and waste collection).

The intensity of the supervision of the operation of the solid waste management will be adapted on the needs of the solid waste management system. In the beginning the efforts will be higher to supervise the system as if the normal routine has taken over due to normal starting problems while a new system is implemented. In the first year of operation international experts of the Consultant will be approx. 6 months in South Lebanon performing intense supervision and instructions for the local experts which perform a non-stop supervision during the year. During the first year of the supervision of the operation the Consultant support the CDR to implement a Monitoring and Evaluation System (ME-System). The components and requirements of this ME-System will be basic parts of the contractual requirements for the operator. The main idea of the system is, that the operator has to provide a documentation of his executed work (e.g. amount of disposed waste, fulfilment of maintenance requirements, etc.) and has to report if problems occurs. Therefore the task of the Consultant is to check these reports and make spot check for the verifications of the provided reports.

5.8.2.1 Collection of the Municipal Waste

The Consultant have to evaluate the interaction between waste collection, waste separation and the disposal of the remaining waste.

The Consultant monitors the rights and duties of the operators during their performance in the following sectors:

- **Waste collection vehicles, collection of the municipal solid waste**
 - Fulfilment of contractual requirements by the operator (e.g. number of collection services, fulfilment of contractual collection schedules, collection routes, circulation of the collection and transfer vehicles)

- Fulfilment of main health and safety requirements during collection and transfer (e.g. technical state of collection vehicles)
- Preparation of requirements (checklists) for inspection and control of vehicles and equipment to be fulfilled by the operator in order to ensure the performance of these maintenance requirements by the operator and to improve the image of the waste collection services
- Evaluation of the kind of the collected waste in order to prevent damage of the collection and transportation vehicles
- **Waste bins, containers or other waste collection equipment**
 - Fulfilment of contractual requirements by the operator e.g. number and suitable placement of waste bins and containers (by spot checks). Assessment of requirements to be fulfilled by the operator to improve the situation
 - Fulfilment of health and safety requirements during waste storage (e.g. technical state of waste bins and containers)
 - Preparation of requirements (checklists) for inspection and control of equipment (e.g. waste bins and containers) to be fulfilled by the operator
 - Check of reports elaborated by the operator if equipment is damaged, destroyed or stolen
 - Elaboration of respective records if waste is burned in the waste bins and containers because of insufficient waste collection by the contractor
 - Fulfilment of requirements for cleanliness to guarantee a waste collection and disposal in a proper way. (e.g. cleanliness of the surrounding area of the containers)
 - Fulfilment of maintenance and clearness requirements for waste bins and containers by the operator to improve the image of the waste collection services
- **Waste collection personnel**
 - Fulfilment of health and safety requirements for waste collection personnel (e.g. use of protection clothes by drivers and workers)
 - Fulfilment of contractual regulations for employment of personnel to guarantee a regular disposal (e.g. number of waste collection workers per waste collection vehicle)

5.8.2.2 Supervision Requirements for Street Cleaning

General supervision requirements for street cleaning are described above. Further special aspects are:

- Check of the fulfilment of contractual requirements by the operator in the field of health and safety (e.g. number of street cleaning workers, number of street cleaning services, cleanliness of streets, equipment used for street cleaning, suitable equipment to fulfil the sanitary and health requirements, use of protection clothes)
- Check of the fulfilment of time schedules for street sweeping as outlined e.g. in shift-plans
- Check of the used equipment for street sweeping and their suitability to perform the services
- Check and control of the performance of street sweeping in the field of healthy and sanitary conditions of the streets, contamination of streets with dirt and the fulfilment of the contractual conditions
- Evaluation of the results of street sweeping (quantity of waste and distribution within the region) based on the reports by the operators
- Preparation of requirements (checklists) for inspection and control of (sweeping) vehicles and equipment to be fulfilled by the operator and to fulfil the requirements of maintenance by the operator to improve the image of the street sweeping services

5.8.2.3 Supervision Requirements for Waste Transfer Stations

General supervision requirements for waste transfer stations are described above. Further special aspects are:

- Check of the fulfilment of contractual requirements by the operator (e.g. quantity of daily transferred respectively delivered waste to the landfills, either on weighing bridges at the transfer stations or at the landfill site) and confirmation of the contractual (optimisation study) fixed number of vehicle circulation
- Check of the fulfilment of health and safety conditions at the transfer stations (e.g. minimisation of noise, odour, dust and other annoyances for the neighbourhood) and to avoid environmental pollution caused by flying paper and soil contamination

- Fulfilment of main health and safety requirements during collection and transfer (e.g. technical state of collection vehicles)
- Preparation of requirements (checklists) for inspection and control of vehicles and equipment to be fulfilled by the operator in order to ensure the performance of these maintenance requirements by the operator and to improve the image of the waste collection services
- Evaluation of the kind of the collected waste in order to prevent damage of the collection and transportation vehicles
- **Waste bins, containers or other waste collection equipment**
 - Fulfilment of contractual requirements by the operator e.g. number and suitable placement of waste bins and containers (by spot checks). Assessment of requirements to be fulfilled by the operator to improve the situation
 - Fulfilment of health and safety requirements during waste storage (e.g. technical state of waste bins and containers)
 - Preparation of requirements (checklists) for inspection and control of equipment (e.g. waste bins and containers) to be fulfilled by the operator
 - Check of reports elaborated by the operator if equipment is damaged, destroyed or stolen
 - Elaboration of respective records if waste is burned in the waste bins and containers because of insufficient waste collection by the contractor
 - Fulfilment of requirements for cleanliness to guarantee a waste collection and disposal in a proper way. (e.g. cleanliness of the surrounding area of the containers)
 - Fulfilment of maintenance and clearness requirements for waste bins and containers by the operator to improve the image of the waste collection services
- **Waste collection personnel**
 - Fulfilment of health and safety requirements for waste collection personnel (e.g. use of protection clothes by drivers and workers)
 - Fulfilment of contractual regulations for employment of personnel to guarantee a regular disposal (e.g. number of waste collection workers per waste collection vehicle)

5.8.2.2 Supervision Requirements for Street Cleaning

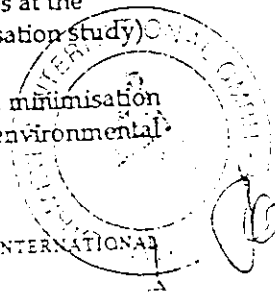
General supervision requirements for street cleaning are described above. Further special aspects are:

- Check of the fulfilment of contractual requirements by the operator in the field of health and safety (e.g. number of street cleaning workers, number of street cleaning services, cleanliness of streets, equipment used for street cleaning, suitable equipment to fulfil the sanitary and health requirements, use of protection clothes)
- Check of the fulfilment of time schedules for street sweeping as outlined e.g. in shift-plans
- Check of the used equipment for street sweeping and their suitability to perform the services
- Check and control of the performance of street sweeping in the field of healthy and sanitary conditions of the streets, contamination of streets with dirt and the fulfilment of the contractual conditions
- Evaluation of the results of street sweeping (quantity of waste and distribution within the region) based on the reports by the operators
- Preparation of requirements (checklists) for inspection and control of (sweeping) vehicles and equipment to be fulfilled by the operator and to fulfil the requirements of maintenance by the operator to improve the image of the street sweeping services

5.8.2.3 Supervision Requirements for Waste Transfer Stations

General supervision requirements for waste transfer stations are described above. Further special aspects are:

- Check of the fulfilment of contractual requirements by the operator (e.g. quantity of daily transferred respectively delivered waste to the landfills, either on weighing bridges at the transfer stations or at the landfill site) and confirmation of the contractual (optimisation study) fixed number of vehicle circulation
- Check of the fulfilment of health and safety conditions at the transfer stations (e.g. minimisation of noise, odour, dust and other annoyances for the neighbourhood) and to avoid environmental pollution caused by flying paper and soil contamination



- Check of the technical facilities at the transfer station
- Preparation of requirements for inspection and control of equipment (checklists) to be fulfilled by the operator and fulfilment of maintenance requirements for equipment and buildings by the operator
- Check of the maintenance of the building and upkeep of green areas, roads and the area of the facility

5.8.2.4 Supervision Requirements for Sanitary Landfills

General supervision requirements for sanitary landfills are described above. Further special aspects of the supervision at the landfill sites are:

- Check of the fulfilment of the technical requirements for preparation of the construction of (additional) landfill-sections (e.g. sealing system, leachate collection, gas collection)
- Check of the fulfilment of contractual requirements by the operator (e.g. landfill filling, placement, compacting and covering of waste)
- Check of the fulfilment of health and safety requirements during waste disposal (e.g. minimisation of noise, odour, dust and other annoyances for the neighbourhood) and to avoid environmental pollution caused by flying paper and soil contamination
- Check of the fulfilment of contractual requirements by the operator concerning the used procedures to treat leachates and methane gas
- Check of the fulfilment of contractual requirements to prepare environmental monitoring measures (odour, ground water, flying waste, methane, leachates, etc.) by the operator to ensure an environmental sound operation at the landfills
- Preparation of requirements (checklists) for inspection and control of landfill equipment to be fulfilled by the operator in order to fulfil precaution-maintenance requirements by the operator
- Check of the correct registration and weighing of the accepted waste for disposal (time, quantity, kind of waste, deliverer, vehicles, etc.)
- Check of the maintenance of the building and upkeep of green areas, roads and the area of the facility
- Assist the CDR in case of discrepancies with the operator concerning the landfilling operation

5.8.2.5 Supervision Requirements for Separation units

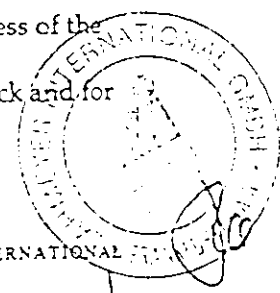
General supervision requirements for separation units are described above. Further special aspects of the supervision at the sites are:

- Check of the fulfilment of the contractual requirements by the operator of the separation unit to secure the recycling of valuable materials and the minimisation of the residual waste
- Preparation of a documentation on the separated material based on the evaluated reports prepared by the operators (control of quality and quantity of recycling materials, statistics).
- Check of the fulfilment of the contractual requirements of health and safety conditions during waste recycling (e.g. technical state of separation unit, use of protection clothes)
- Check of the fulfilment of the contractual requirements of the maintenance of the separation facility performed by the operator
- Check of the fulfilment of the contractual requirements concerning environmental requirements during the waste separation (e.g. minimisation of noise, odour, dust and other annoyances for the neighbourhood)
- Preparation of quarterly statistics based on the monthly reports of the operator (consideration of different composition of waste during the year)

5.8.2.6 Supervision of Administration and Maintenance Buildings

General supervision requirements for administration and maintenance buildings are described above. Further special aspects of the supervision at the sites are:

- Check of the fulfilment of the contractual requirements for maintenance and cleanliness of the buildings and areas by the operator
- Check of the fulfilment of the contractual requirements for original spare parts in stock and for ordering replacement in time by the operator



- Check of the performed maintenance, wear and tear measures for the vehicles by the operator to ensure the operation of the services and make planning for replacements (investments) feasible
- Check of the available tools of the operator to ensure the performance of maintenance, wear and tear measures and check of health and safety equipment
- Inspection of the installed data based information and administration system of the operator

5.8.3 Accounting and Financial Balances

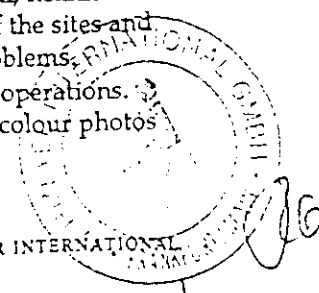
The Consultant will control the necessary accounting for the operation of waste management by the contracted companies. Main tasks of the Consultant are:

- Ensure the fulfilment of the financial conditions of the operational contracts by taking into account the annual balance, payment conditions, contractual penalties by verification of the financial reports to be prepared by the contracted companies
- Check of the fulfilment of financial duties by the contracted companies (e.g. assurances, fees for electricity, water, taxes)
- Check the contractual accordance of monthly and/or quarterly statements prepared by the operators in order to confirm the contractual conditions
- Check of reports prepared by the operators concerning supplements and prepare recommendations for the CDR for approval to confirm the financial request
- Elaboration of annual financial reports, balances and statistics of the current financial year and preparation of adaptations for the prolongation of the operational contracts for the next financial year
- Elaboration of the final account balances at the end of the contracts and prepare the balance of all accounts
- Preparation of statistics (contractual costs, quantity of waste, number of inhabitants to served) in order to confirm the financial parameter and determine investments for replacements or additional facilities/equipment
- Advise the CDR concerning the assessment of the remaining value of returned facilities and equipment after the end of operational contracts
- Approve the electronically management system of the operators in order to enable the financial and accounting control of the operators by the CDR

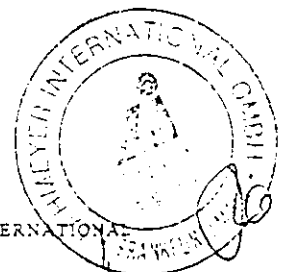
5.8.4 Documentation

The Consultant prepares quarterly reports covering the operational conditions at the sites and the used methods of supervision. Basis of this report are:

- Quarterly financial report prepared by the Consultant based on the applications for payment submitted by the operators and the respective payments (actual and future financial needs) in accordance to the procedures of the CDR
- The Consultant elaborates a documentation and a record of operational problems based on the inspections and the working report of the operator. Faults and omissions of the operator are listed the reasons and consequences for operation, finances and environment are analysed. The respective correspondence with the operator and the record is added to the quarterly report.
- The Consultant assists the CDR in case of discrepancies concerning the service of the operators through preparation of comments and recommendations taking into account the contractual regulations and the needs of the CDR.
- The Consultant prepares analytical balances covering quality and quantity of the waste recycling and the use of the vehicles based on reports of the operators and visual inspections. Furthermore the Consultant prepares databases in order to support statistical activities to allow a mid and long-term planning of the extension of facilities and replacement of equipment.
- The Consultant prepares a quarterly report about fulfilment of the environmental, health and safety requirements through the operator. The report bases on the inspections of the sites and the working reports of the operator. The Consultant comments on occurring problems.
- The Consultant prepares a photo documentation of the different waste disposal operations. Correct and insufficient execution of services by the operator will be proved by colour photos (10x15 cm) such as:



- quality of services
- lacks and failures of operator, insufficient services
- damages or missing maintenance of equipment, vehicles and buildings
- illegal disposal practices
- disputes, unlawful situations
- environmental risks and damages caused by unsuitable waste disposal



REPUBLIQUE LIBANAISE

BEYROUTH

CONSEIL DU DEVELOPPEMENT ET DE LA RECONSTRUCTION

PROJET DES DECHETS SOLIDES

PROGRAMME SWEMP

REGION N°2

LIBAN SUD

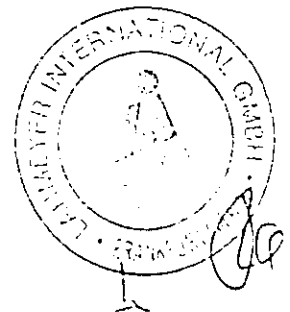
MISSION DE SURVEILLANCE DES CONTRATS

D'EXPLOITATION DU SERVICE PUBLIC

PERSONNELS CLE ET CURRICULUM VITAE

ANNEXE E

MAI 1998



PERSONNEL CLE ET

SOUS-TRAITANTS



ANNEXE C - PERSONNEL CLE ET SOUS-TRAITANTS

INTERNATIONAL PERSONNEL

Waste Management Specialist

Mr. I. Kutay is an environmental engineer with 7 years of professional experience in solid waste masterplans, integrated solid waste management concepts and project design and project engineering. Profound experience in the conduction of complex studies for regions in Germany and various foreign countries.

Waste Management Specialist

Mr. B. Rasch is environmental engineering for technical infrastructure projects with 10 years of professional experiences. Broad knowledge in the field of municipal, industrial and hazardous waste. This includes: Project management for overall integrated recycling and disposal concepts and masterplans on municipal, state or national level; site selection, logistic studies, environmental impact assessment studies, feasibility studies, design work and tendering for composting and digestion plants, treatment and disposal facilities, as well as rehabilitation of sanitary landfills; implementation programmes with regard to tariff and tax studies, operation and maintenance concepts, BOT consulting service, institutional strengthening and staff training.

Waste Management and Tendering/Procurement Specialist

Mr. B. Hasel is an environmental engineer with experience in the field of environmental protection especially waste management and waste treatment. Special experience in the elaboration of waste management concepts and feasibility studies as well as in process design for the construction of solid waste treatment plants. Profound knowledge in biological-mechanical waste treatment and assessment of environmental impacts of waste treatment plants. Experience in assessment of regional, environmental and waste management data via questionnaires and checklists (emergency programs and feasibility studies) and in tendering and procurement of waste treatment and handling facilities. Specialist for training of waste management personnel.

Site Selection, ELA Specialist

Dr. L. Khalaf is an environmental geologist with experience in environmental engineering, site selection and geology. She is a Consultant of the Ministry of Environment, Lebanon, and has been teaching at the Notre Dame University of Beirut. In this project she will assist in site selection and waste management.

Construction Supervision, Landfill Design and Technology

Mr. B. Rompel is civil engineer with special training in the field of domestic water supplies and with extensive experience in waste management projects. Specialist for waste transfer stations, waste transportation, waste separation and final landfilling. Profound knowledge in the planning, site selection and operation of sanitary landfills including leachate water treatment and gas collection. Planning, supervision of works and training measures in the fields of waste management, sewerage systems and waste treatment plants.

Operation Supervision

Mr. D. Hueber is Civil and Environmental Engineer with extensive experience in project planning, project management and assessment of impacts to the environment. Expert in waste management and in contaminated sites investigation and remediation actions. Consultancy in planning, approving and operating waste treatment plants and sanitary landfills. Consultancy and assistance to the technical authorities in case of risks to the environment due to improper handling of waste and substances hazardous to water. Elaboration of "Master Plans" for the management of urban-, special- and hazardous-wastes including the investigation and classification of the different types and amounts of wastes. Member of the editorial working group "Contaminated Site Handbook" and of the national working group "Biogas from Landfills".

Financial Expert

Mr. R. Wiens is an economist with long and world wide practical experience in evaluation, economic, financial and organisational analysis of projects and institutions. He will work to develop the financial decision criteria for the project and prepare the financial analysis.

Estimated distribution of the work of the international experts between Lebanon and Germany:

International Expert	Man-month in Lebanon*	Man-month in home office
I. Kutay	0,0	0,0
B. Rompel	0,0	0,0
D. Hueba	6,2	0,0
R. Wiens	0,0	0,0
B. Rasch	0,5	0,0
B. Hasel	0,0	1,2
L. Khalaf	0,0	0,0
Sum international experts	6,7	1,2

*(including travel-time)

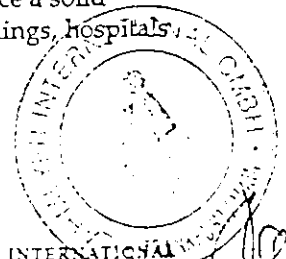
NATIONAL PERSONNEL

Civil Engineer for Buildings:

Mr. Charles Helou has been chosen for this position because of his practical experience in structural design for both large and small buildings and because of his exposure to both the design and construction disciplines. Mr. Helou is currently designing the structural systems of many of the 29 buildings for the Lebanese University Campus Execution Design project. Also designed Dr. Taleb's 14 story residential building in Beirut.

Electrical Engineer

Mr. Khalil Haddad has been chosen for this position. Mr. Haddad graduated "major" in his promotion at the Ecole Supérieure d'Ingenieurs de Beyrouth in 1991 and gained since a solid experience working on water treatment and pumping stations, administrative buildings, hospitals (such as Tripoli Hospital), electrical installations of fire stations, etc..



Mechanical Engineer

Mr. Walid Chehade has been chosen for this position because of his long experience on major and varied projects such as the Amchit Bitumen Plant in North Lebanon, Tripoli Hospital (North Lebanon), Dbaye Water Treatment and Pumping Station Extension project, the Solid Waste Incineration plant in South Beirut.

Assistance Environmental Engineer

Mr. Samir Taleb, a geotechnical engineer, has had quite some exposure to environmental projects, both in the USA working on the Central Artery project in Boston and in Lebanon working on Bisri Dam Feasibility study and detailed design with our joint venture partners (ECI- a division of Frederic Harris, New York). For that, he has been nominated for the above position.

Engineers for Construction Supervision

For these positions, M/s Samih Abou Chacra and Akram Younes have been chosen. Both have extensive experience in the supervision of construction works.

Mr. Abou Chacra is well experienced in the supervision of major projects in Lebanon and the Middle East and in domains such as roads and highways, bridges and retaining structures, water. Some of the projects he worked on are: Hajja Al Khushum road in Yemen, Bogue-Kaida road in Mauritania, Road network rehabilitation in North Bekaa, Lebanon, waste water scheme in Mount Lebanon.

Mr. Akram Younes is well experienced in the supervision of large projects both in the buildings and the infrastructure sectors. Some of the projects he worked on are: the Residential complex for the employees of Damascus International Airport, Roads and Buildings projects with the Department of Transportation and Communication in Libya, The Road Network Rehabilitation and Modernisation of North Bekaa, Lebanon.

Operation Supervision - Technical

For this position, Mr. Pierre Semaani has been nominated. With his complementary experiences working with a general contractor on supervising construction of residential and commercial buildings in Hazmieh and Adma and Sin El Fil and being a site supervisor and safety officer for the substructure works in Beirut Central District (SOLIDERE) and then working with Dar Al Handasah on master plans for Minieh (North Lebanon) water network and on detailed design of water networks in the cazas of Bekaa and El Hermel (Bekaa Valley), Mr. Semaani has the right mix of knowledge to supervise the technical operations of the Solid Waste project in Lebanon.

Operation Supervision - Administrative:

For this position, Mrs. Houthaima Rashid has been nominated. With her long years of experience of handling the administrative aspects of various engineering projects such as the Jounieh-Bkerke 4 lane mountainous road supervision of construction project, the Jyeh-Zahrani 6 lane highway design project, the Bekaa-El Hermel water and waste water master plans and detailed design project, the Upgrading of Beirut City Services (water, waste water, electricity, fire fighting stations, health care facilities, etc.), Mrs. Rachid proved she can do well the job of preparing progress reports, maintaining cost records, preparing quantities survey and more of the administrative tasks required in the supervision mission.

National Expert	Man-month in Lebanon
Engineer Operation Supervision - Technical	12,4
Engineer Operation Supervision - Financial	12,4
Technical staff	24,8
Sum national experts	49,6



MAIN KEY STAFF

Project Director

Mr. Hans-Joachim Hample is an Environmental Management Expert with more than 27 years of professional experience in management and supervision of complex projects in environmental engineering, e.g. development, engineering and realisation of projects for treatment and disposal of municipal and industrial waste. Profound experience in technology assessment and environmental auditing, organisation and supervision of conferences, workshops as well as conducting of public relation activities related to project realisations. Management of the department waste management and treatment.

Waste Management Specialist - Project Manager

Mr. B. Rasch is an environmental engineer for technical infrastructure projects with 10 years of professional experiences. Broad knowledge in the field of municipal, industrial and hazardous waste. This includes: Project management for overall integrated recycling and disposal concepts and masterplans on municipal, state or national level; site selection, logistic studies, environmental impact assessment studies, feasibility studies, design work and tendering for composting and digestion plants, treatment and disposal facilities, as well as rehabilitation of sanitary landfills; implementation programmes with regard to tariff and tax studies, operation and maintenance concepts, BOT consulting service, institutional strengthening and staff training.

Construction Supervision, Landfill Design and Technology

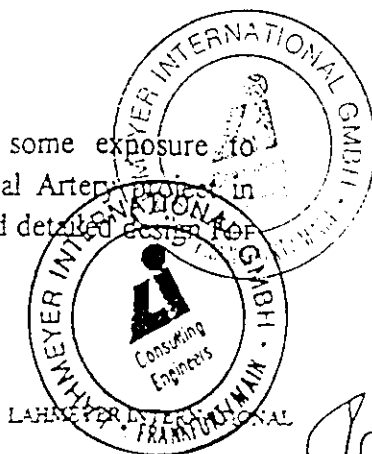
Mr. B. Rompel is civil engineer with special training in the field of domestic water supplies and with extensive experience in waste management projects. Specialist for waste transfer stations, waste transportation, waste separation and final landfilling. Profound knowledge in the planning, site selection and operation of sanitary landfills including leachate water treatment and gas collection. Planning, supervision of works and training measures in the fields of waste management, sewerage systems and waste treatment plants.

Deputy Project Manager

Mr. Michel Khayata has over 15 years of experience in Civil Engineering and Water Treatment design and supervision, co-ordination of studies and works, profound experience in organisation, planification and control in Lebanon and various foreign countries.

Assistance Environmental Engineer

Mr. Samir Taleb, a geotechnical engineer, has had quite some exposure to environmental projects, both in the USA working on the Central Artery project in Boston and in Lebanon working on Bisi Dam Feasibility study and detailed design for that, he has been nominated for the above position.



DAR AL HANDASAH NAZIH TALEB & PARTNERS consulting engineers

دار الهندسة نزيه طالب وشركاه للتصميم والاستشارات الفنية

The key-staff (Technical staff not included) provided by Dar Al Handasah Nazih Taleb & Partners during the first part of the project : Projet des déchets solides Programme SWEMP, région No 2 Liban-Sud , named "Réalisation des études et consultation des Entreprises" is the following :

Michel Khayata	Deputy project Manager
Roland Mitri	Architect for design & construction of Buildings
Charles Helou	Civil Engineer for design & construction of Buildings
Nehmatallah Mounzer	Civil Engineer for design & construction of Buildings
Khalil Haddad	Electrical Engineer for design of facilities
Walid Chehadé	Mechanical Engineer for design of facilities
Samir Taleb	Geotechnical Engineer-Assistance in environmental engineering and assistance for the design of sanitary landfills

The key-staff (Technical staff not included) provided by Dar Al Handasah Nazih Taleb & Partners during the second part of the project : Projet des déchets solides Programme SWEMP, région No 2 Liban-Sud , named "Mission de surveillance des travaux des ouvrages et des fournitures de projet" is the following :

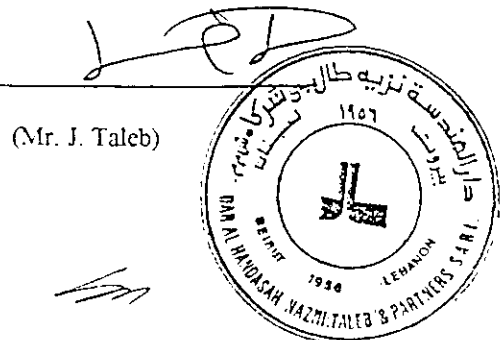
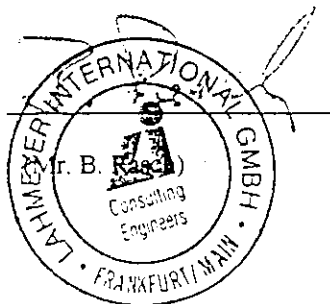
Michel Khayata	Deputy project Manager
Akram Younés	Civil Engineer for construction supervision
Samih Abou Chacra	Civil Engineer for construction supervision
Charles Helou	Civil Engineer for construction of buildings

The key-staff (Technical staff not included) provided by Dar Al Handasah Nazih Taleb & Partners during the third part of the project : Projet des déchets solides Programme SWEMP, région No 2 Liban-Sud , named "Mission de surveillance des contrats d'exploitation du Service Public" is the following :

Houthaima Rashid	Operation Supervision-Administrative
Pierre El Semaani	Operation Supervision-Technical

For LAHMEYER INTERNATIONAL GmbH

For DAR AL HANDASAH NAZIH
TALEB & PARTNERS



(Mr. J. Taleb)

CURRICULUM VITAE

Proposed Position: Project Director

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: HANS-JOACHIM HAMPEL
Profession: Head of Department, Waste Management and Treatment
Date of Birth: 28.12.1944
Years with Firm: 6 years
Nationality: German

Membership of Professional Societies:

Deutscher Verband für Wasserwirtschaft und Kulturbau e.V., DVWK (German Association for Water Management and Cultivation)

Detailed Tasks Assigned:

- Coordination of staff
 - Communication with client
 - Organisation of back stopping
-

Key Qualifications:

Environmental Management Expert with more than 27 years of professional experience in management and supervision of complex projects in environmental engineering, e.g. development, engineering and realisation of projects for treatment and disposal of municipal and industrial waste. Profound experience in technology assessment and environmental auditing, organisation and supervision of conferences, workshops as well as conducting of public relation activities related to project realisations. Management of the department waste management and treatment.

Relevant experience related to tasks assigned:

- 1997, Feasibility Study Solid Waste Management Denizli, Turkey
- 1997, Pilotproject in Solid Waste Management Slovenia
- 1996, Pre-feasibility Study for Solid Waste Recycling and Disposal Facilities in Isparta, Turkey,



Education:

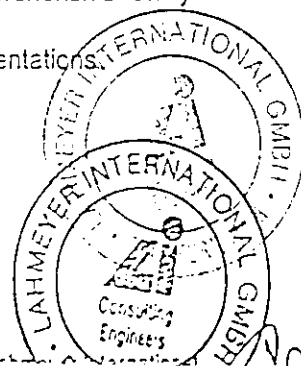
- 1965-1968 Studies in Process Engineering at the Technical University of Frankfurt, Germany
- 1963 Graduation as Diplom-Ingenieur in Process Engineering (equiv. to M.Sc.) Technical University of Frankfurt, Germany

Employment Record:

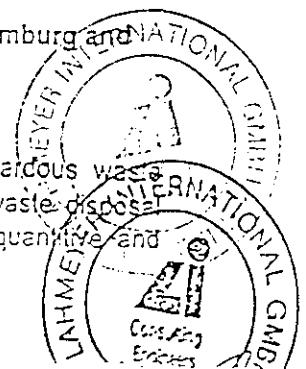
- since 1991 LAHMEYER INTERNATIONAL GMBH
to date Consulting Engineers, Frankfurt/Main, Germany
Division Environmental Engineering and Protection
Head of Department Waste Management and Treatment
- since 1997 Manager for international project development in the Division Environmental Engineering and Protection
- 1997 Feasibility Study Solid Waste Management Denizli, Turkey
KfW (Kreditanstalt für Wiederaufbau), Denizli Municipality
Project Director
Development of an integrated waste management concept for a district with a population of approx. 500,000 (collection, recycling, treatment, disposal). Site selection for a sanitary landfill, technical design of recycling facilities and a sanitary landfill, economic evaluation and financial analysis, implementation and operation concept, tendering procedure.
- 1997 Pilot Project in Solid Waste Management and Technical Infrastructure Facilities, Slovenia
European Union
Project Director, Manager for Training and Public Relations
Integrated waste management concept for a district with a population of 200,000 in terms of minimisation, utilisation, treatment and deposition of municipal, industrial and hospital waste; forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005; examination of waste minimisation concept and investigation of alternatives in the residues recycling, composting, treatment and disposal with respect to economic and environmental aspects; site selection for solid waste treatment and disposal facilities. Development of an implementation concept and management of a training programme for authorities.
- 1996 Concept and Process Analysis of Biological-Mechanical and Thermal Waste Treatment Plant, Germany
Zweckverband Abfallwirtschaft West Saxony
Project Manager
Feasibility study under consideration of technical, economical and ecological comparative criteria for the treatment of residual waste by a combination of biological-mechanical and thermal waste treatment. Re-evaluation of best suitable sites for treatment facilities with regard to transport and transfer station. Implementation programme for further activities.



- 1996 Evaluation and Formulation Mission for the Integrated Project for Recycling and Composting Solid Waste in Five Cities in the Republic of Yemen
Project Director
Support for a local private company in the project realization. Special tasks assigned: Comments on the existing 5 prefeasibility reports; Recommendations on the Terms of Reference for an improved prefeasibility report; Offer for consultancy to carry out the prefeasibility report; Comments on the revised prefeasibility report.
- 1996 Waste Minimisation Strategies and Programmes in the OECD-Member-Countries
German Federal Ministry of the Environment
Project Director
Comprehensive work programme supporting the OECD's Waste Minimisation Work Programme including the elaboration of a detailed questionnaire on waste minimisation, report on status quo of waste minimisation policy in OECD member states, analysis of success and failure of instruments and measures aiming at supporting waste minimisation, proposals for future approaches to waste minimisation nationwide and on an international level (OECD, EU, UNEP).
- 1996 Pre-feasibility Study for Solid Waste Recycling and Disposal Facilities in Isparta, Turkey
Municipality of Isparta
Project Director
With regard to the population forecast of 300,000 inhabitants, the main units of future solid waste recycling, treatment and disposal facilities for municipal, industrial, hospital and hazardous waste were elaborated/investigated. Responsible for project controlling as well as for preparation and conduction of seminars with the municipalities with regard to waste minimisation and recycling.
- 1994-95 Integrated Solid Waste Management Concept, Site Selection and Feasibility Study, Germany
District of Bergstraße, Hesse
Project Director
Integrated waste management concept for a district with approx. 250,000 inhabitants, according to minimisation, utilisation, treatment and deposition of urban waste, forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005, examination of alternatives in the recycling treatment and disposal of residual waste with respect to economic and environmental aspects, tax study and site selection for solid waste treatment and disposal facilities with a geographical information system (GIS). Development of an implementation programme.
- 1994 Publications and Seminars on Business Opportunities in the Field of Environmental Technologies in India
German Investment and Development Company
Project Director
Seminars in India and several European cities on behalf of the German Investment and Development Company referring to the results of a comprehensive study carried out in India in 1992/93.
Publications in German and English; Press releases; Seminars; Presentations.



- 1994 Feasibility Study on Treatment and Utilization of Contaminated Sediments, Germany
Port Authority and Environmental Department of Hamburg
Project Director
International survey and elaboration of data base on the state-of-the-art treatment and utilization of contaminated sediments. In depth analysis of selected processes with special regard to technological, economical and ecological aspects of the beneficial use of the products. Development of an assessment procedure for sediment treatment technologies and implementation for Hamburg Harbour.
- 1993-94 Integrated Solid Waste Management Concept, Site Selection and Feasibility Study for 4 Districts in Rhineland-Palatinate, Germany
Working Group of the Districts of Altkirchen, Neuwied, Westerwald und Rhein-Lahn
Project Director
Integrated waste management concept for 4 districts (approx. 620.000 inhabitants) according to minimisation, utilisation, treatment and sanitary landfilling of urban waste, forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005, reevaluation of tariff and tax system, examination of a public relation programme, examination of alternatives in the treatment and disposal of residual waste with respect to economic and environmental aspects, evaluation of models for public-private partnership cooperation, site selection for solid waste treatment and disposal facilities with a geographical information system (GIS). Development of an implementation programme.
- 1992-93 Investigation of the Potential for Indo-German/European Collaboration in the Field of Industrial Environmental Protection, Germany and India
DEG Deutsche Investitions- und Entwicklungsgesellschaft mbH
Project Director
Evaluation of interviews with representatives of Government of India, authorities, industries and non-governmental organizations. Identification of 15 potential fields of cooperation (joint ventures, technology transfer agreements) and technological, political, economic and socio-cultural assessment. Estimation of market potentials for the determined fields of cooperation. Organization and conduction of seminars, lectures in India and Germany.
- 1992-93 Concept, Site Selection and Feasibility Study for Treatment and Disposal Facilities of Solid Waste, Germany
Districts of Heilbronn, Main-Tauber, Hohenlohe, Schwäbisch-Hall
Project Director
Concept for the treatment of solid waste for a region with 5 districts (approx. 700.000 inhabitants), investigation and prognosis of the solid waste generation up to the target year 2003, analysis and assessment of processes for the waste treatment, development of a combined concept for the biological and thermal waste treatment, and site selection for waste treatment and disposal facilities with a geographical information system (GIS).
- 1992-93 Regional Demand Analysis of the Hazardous Waste Volumes in Hamburg and Northern Germany
Abfallverbrennungsgesellschaft (AVG) Hamburg, Germany
Project Director
Assessment of existing situation and demand analysis for the hazardous waste recycling and disposal facilities for private enterprise in hazardous waste disposal services in Hamburg. Prognosis of hazardous waste generation in quantitative and



Signature

qualitative terms up to the target year 2003. Determination of the necessary recycling and treatment capacities (capacity 120.000 Mg/a) as well as specific types of treatment.

1991-93 Feasibility Study and Plant Design for a Biological-Mechanical Waste Treatment Plant, Germany
Zweckverband Abfallentsorgung Breisgau (ZAB), Freiburg
Project Director
Feasibility study and plant design of a biological-mechanical waste treatment plant with a capacity of 180.000 Mg/a. Assessment of the technical and environmental requirements of site suitability with respect to construction, technical, economic and ecological optimisation demands.

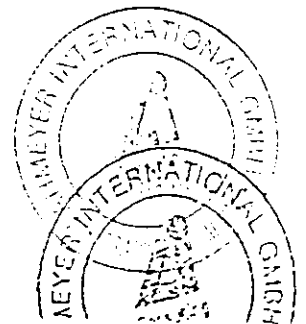
1988-91 BATTELLE INSTITUT, Frankfurt/Main, Germany
Department Process Engineering and Environmental Technology

1988-91 Development of processes for treatment and utilization of contaminated sediments, Germany
Port Authority of Hamburg and Bremen
Project Manager
Development, design, construction and commissioning of dewatering processes and disposal of contaminated sediments of the Elbe and Weser rivers.

1990 Study on the State-of-the-Art for Waste Minimisation
Ministry for the Environment of Hesse
Project Director
Execution of a comprehensive literature survey covering all major industrial sectors with the aim to investigate and define the state-of-the-art in low waste technologies, techniques for recovery and recycling of waste, as well as utilization of waste.

1989-90 Comparison on Various Options for the Future Urban Waste Management for the City of Bremen
Environmental Department of Bremen
Project Director
Investigation and assessment for future concepts for the treatment of 200.000 t/a of solid wastes by incineration. Identification of technical options to the existing incineration plants; e.g. selection of appropriate technologies; environmental impact assessment as well as assessment of the technical and economic feasibility of the improvement of the existing plants as well as the erection of new plants.

1988 European Survey on Hazardous Wastes
Private Company
Project Director
Investigation for a private investor the state-of-the-art in Europe in the field of treatment capacities for hazardous waste as a basis for a general decision on investing in off-site incineration facilities.



- 1985-89 Development of concepts and strategies for dewatering, chlorification and thermal treatment of contaminated sediments, Germany
Port Authority of Hamburg and Bremen
Project Manager
Feasibility study and state-of-the-art investigation in the field of sediment treatment and utilisation. Development of processes from lab scale, pilot operation up to the technical realisation.
- 1985 Feasibility Study on the international state-of-the-art on environmental production of Titanium dioxide with regard to waste minimization, Germany
German Ministry of Research and Technology
Project Director
- 1985 Feasibility Study on the Utilization of Water Hyacinths on the River White Nil in Sudan, Africa
German Association for Technical Cooperation (GTZ)
Project Manager
- 1980-85 Process Development and Pilot Plant Operation on the desalination of sea- and brackish water by means of high temperature electro dialysis using waste heat from nuclear power plants, Germany
Federal Ministry of Research and Development
Project Manager
- 1976-80 Process Development, Design, Construction and Commissioning of Production Plant for Chemical Intermediators
Private Client in the Philippines and Sudan
Project Manager
- 1973 Investigation and assessment of the existing conditions and expected development in the member countries of the European Community on production, marketing, distribution and technology in the field of straight and complex nitrogenous fertilizers
Greek Development Bank
Project Manager



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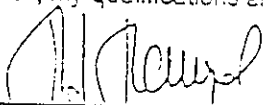
- 1974-78 Development, design, construction and operation of a pilot plant for the production of cyannic chloride
Private Client in Bombay, India
Project Manager
- 1968-74 Process development for the industrial production of chinidin sulfate, lab scale, pilot experiments and design of the production facilities, Germany
Private Investor
Project Manager
- 1968-70 Process development for various products in food industry, pilot experiments and technical implementation, Germany
Private Investor
Project Manager

Languages:

	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	excellent	excellent	excellent

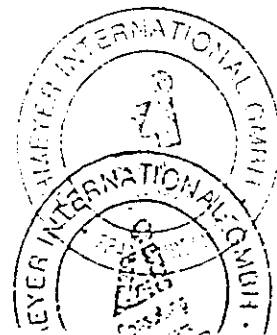
Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.



Signature of Staff Member or
authorized official from the firm

Date: 22. 05. 1997
Day/Month/Year



Publications and Presentations:

HAMPEL, H.J. et al: "State of Waste Minimisation in OECD Member Countries", presentation of the interim report of the research study on the state of waste Minimisation in OECD member countries, Waste Minimisation Workshop, Berlin, October 15-18, 1995.

HAMPEL, H.J.; H. KASCHUBE: "Privatising Municipal Waste Management A German Model", presented at the conference on environmental technology and business opportunities, Kuala Lumpur, Malaysia, November 6-7, 1995.

HAMPEL, H.J.; E.v. HERMANN: "Kombinationsmodelle von biologisch-mechanischen und thermischen Restabfallbehandlungsanlagen", Vortrag zum VDI_Kolloquium, Dresden, May 23, 1995.

Presentation of various Integrated Waste Management Concepts in Baden-Württemberg and Rheinland-Pfalz, leading conference as chairman (1993-94).

HAMPEL, H.J.; H. KASCHUBE: "Möglichkeiten der Kombination von biologisch-mechanischer und thermischer Restabfallbehandlung", Vortrag zum 7. Fachgespräch der Verbands unabhängig beratender Ingenieure e.V., Bonn, November 23, 1993.

HAMPEL, H.J.; MEHRLING, P.; KRÖNING, H.: "Mechanical and Thermal Treatment of Dredged Material to Produce Ceramic Pellets", presented at the Baste International Symposium on Solid/Liquid Separations, December 5-7, 1999.

GIDARAKOS, E.; HAMPEL, H.J.; RETTEBERG, H.: "Neue Technologien zur Behandlung von Baggergut - Systemanalyse, Entwicklung, Bewertung", Internationaler Umweltkongress: "Der Hafen - eine ökologische Herausforderung", Hamburg, September 11-15, 1999.

HAMPEL, H.J.; KRÖNING, H.: "Mechanical Separation and Thermal Treatment of Dredged Material from the Hamburg Harbour" (Poster), Proceedings of the International Seminar on the Environmental Aspects of Dredging Activities, November 22 - December 1, 1999.

HAMPEL, H.J.; HANKEL, D.; KRÖNING, H.: "Mechanical Separation and Thermal Treatment of Dredged Material from the Hamburg Harbour" (Poster), U.S. EPA Forum on Innovative Hazardous Waste Treatment Technologies: Domestic and International, Atlanta, Georgia, USA June 19-21, 1999.

HAMPEL, H.J.; HANKEL, D.; KRÖNING, H.: "Thermische Behandlung von Hafenschlick" Zweiter Internationaler TNO/BMFT Kongress über Altlastsanierung, Hamburg, April 11-15, 1998.

HAMPEL, H.J.; FITZPATRICK, V.F.: "In-situ-Vergrasung - eine neu entwickelte Schmelztechnologie zur thermischen Sanierung von kontaminierten Böden" (Poster), Zweiter Internationaler TNO/BMFT Kongress über Altlastsanierung, Hamburg, April 11-15, 1998.

HAMPEL, H.J., HOMILIUS, W.; WÜNSCHE, B.: "Feldversuche zur Entwässerung von Hafenschlick", Fachseminar Baggergut, Hamburg, February 27 - March 1, 1994.

FREY, M.; HAMPEL, H.J.: "Behandlung und Beseitigung von Hafenschlick - ein systemanalytischer Lösungsansatz", in Ancevranda Systemanalyse, Band 5/Heft 3 + 4 (1994).

BEHRET, E.; HAMPEL, H.J.; et al.: "Meer- und Brackwasserentsalzung mittels Hochtemperatur-Elektrodialyse", in Synopse Chem. Ing. Techn. 50. Nr. 5, S. 395, 1978.



CURRICULUM VITAE

Proposed Position: Project Manager

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: BERNHARD RASCH
Profession: Mechanical and Environmental Engineer
Date of Birth: 30.08.1953
Years with Firm: 3 years
Nationality: German

Membership of Professional Societies:

Abwassertechnische Vereinigung e.V., Essen/Hannaf, Germany

Detailed Tasks Assigned:

- Project management
 - Coordination of staff
 - Communication with the client
 - Execution and supervision of main tasks
-

Key Qualifications:

Environmental engineering for technical infrastructure projects with 10 years of professional experiences. Broad knowledge in the field of municipal, industrial and hazardous waste. This includes: Project management for overall integrated recycling and disposal concepts and masterplans on municipal, state or national level; site selection, logistic studies, environmental impact assessment studies, feasibility studies, design work and tendering for composting and digestion plants, treatment and disposal facilities, as well as rehabilitation of sanitary landfills; implementation programmes with regard to tariff and tax studies, operation and maintenance concepts, BOT consulting service, institutional strengthening and staff training.

Relevant experience related to tasks assigned:

- 1997, Feasibility Study Solid Waste Management Denizli, Turkey
- 1997, Pilotproject in Solid Waste Management Slovenia
- 1994-97, Integrated waste management concepts and site selections Puerto Montt and Chile
- 1996, Environmental management plan Galapagos Island, Ecuador
- 1996, Policy consultancy for Waste Minimisation strategies and programmes in OECD member countries

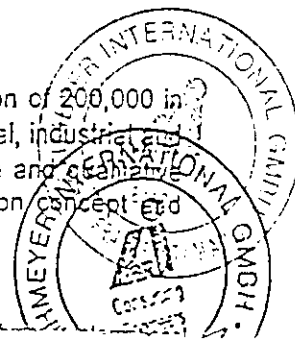


Education:

- 1979-1986 Studies in Mechanical and Environmental Engineering at the Technical University of Darmstadt, Germany
- 1986 Graduation as Dipl.-Ing. (equiv. to M.Sc.) in Mechanical Engineering

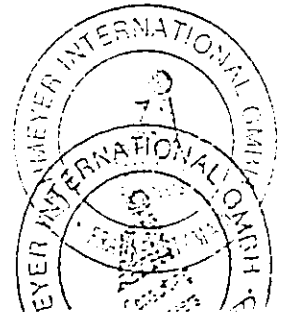
Employment Record:

- since 1988 LAHMEYER INTERNATIONAL GMSH
to date Consulting Engineers, Frankfurt/Main, Germany
Division Environmental Engineering and Protection
- 1986-88 Freelanc Work in the field of solid waste management for universities and consultants
- 1997 Feasibility Study Solid Waste Management Denizli, Turkey
KFW (Kreditanstalt für Wiederaufbau), Denizli Municipality
Project Manager
Development of an integrated waste management concept for a district with a population of approx. 600,000 (collection, recycling, treatment, disposal). Site selection for a sanitary landfill, technical design of recycling facilities and a sanitary landfill, economic evaluation and financial analysis, implementation and operation concept, tendering procedure.
- 1997 Site Selection and Investigation of Logistics for Decentralized Thermal Waste Treatment Plant, Germany
anonymous
Project Manager
Analysis and evaluation of potential sites under consideration of waste management, constructional and ecological criteria, investigation of optimization options in terms of transport logistics in a split transport system (road/rail), elaboration of a public relations programme to optimise the acceptance of the selected site, identification of further implementation measures.
- 1997 Concept for future solid waste disposal facilities for 5 Districts in Rhineland-Palatinate, Germany
Authorities of the Districts Aitenkirchen, Neuwied, Westerwald, Rhein-Lahn
Project Manager
Review of the existing sanitary landfill sites with regard to further rehabilitation measures. Assessment of investment requirements and cost-benefit analysis for different alternatives for solid waste disposal. Elaboration of a sustainable operation- and rehabilitation concept regarding the existing sanitary landfills in the region.
- 1997 Pilotproject in Solid Waste Management and technical infrastructure facilities, Slovenia
European Union
Deputy Project Manager
Integrated waste management concept for a district with a population of 200,000 in terms of minimisation, utilisation, treatment and deposition of municipal, industrial and hospital waste; forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005; examination of waste minimisation concept and



investigation of alternatives in the residues recycling, composting, treatment and disposal with respect to economic and environmental aspects; site selection for solid waste treatment and disposal facilities. Development of an implementation concept and management of a training programme for authorities.

- 1996-97 Integrated Solid Waste Management Concept Site Selection and Feasibility Study for the City of Osorno, Chile
Chilean Ministry for Planning (MIDEPLAN) and Inter-American Development Bank (IDB)
Project Manager
Integrated waste management concept for a district with a population of 160,000 in terms of minimisation, utilisation, treatment and deposition of municipal, industrial and hospital waste; forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2015; examination of waste minimisation concept and investigation of alternatives in the residues recycling, composting, treatment and disposal with respect to economic and environmental aspects; site selection for solid waste treatment and disposal facilities. Development of an implementation concept and management of a training programme for authorities.
- 1995 Concept and Process Analysis of Biological-Mechanical and Thermal Waste Treatment Plant, Germany
Zweckverband Abfallwirtschaft West Saxony
Deputy Project Manager
Feasibility study under consideration of technical, economical and ecological comparative criteria for the treatment of residual waste by a combination of biological-mechanical and thermal waste treatment. Re-evaluation of best suitable sites for treatment facilities with regard to transport and transfer station. Implementation programme for further activities.
- 1995 Site Selection and Investigation of Logistics for Thermal Waste Treatment, Germany
Zweckverbände West Saxony, North Saxony and District of Delitzsch
Deputy Project Manager
Analysis and evaluation of potential sites under consideration of waste management, constructional and ecological criteria, investigation of optimization options in terms of transport logistics in a split transport system (road/rail), elaboration of a public relations programme to optimise the acceptance of the selected site, identification of further implementation measures.
- 1995 Waste Minimisation Strategies and Programmes in the OECD-Member-Countries
German Federal Ministry for the Environment
Project Manager
Comprehensive work programme supporting the OECD's Waste Minimisation Work Programme including the elaboration of a detailed questionnaire on waste minimisation, report on status quo of waste minimisation policy in OECD member states, analysis of success and failure of instruments and measures aiming at supporting waste minimisation, proposals for future approaches to waste minimisation nationwide and on an international level (OECD, EU, UNEP).



1995-96

Prefeasibility and Feasibility Study for Water Supply, Waste Water and Solid Waste Disposal on Galapagos Islands, Ecuador
Comission Permanente de Islas Galapagos and Inter-American Development Bank (IDB)
Project Manager

As part of an overall environmental protection masterplan the necessary infrastructure for water, waste water and solid waste was investigated. To this belongs the reevaluation of existing reports on site selection, prefesibility and feasibility studies for above mentioned technical infrastructure units. Elaboration of an implementation concept with regard to BOT models and institutional strengthening.

1995

Prefeasibility study for solid waste recycling and disposal facilities in Isparta
Turkey

Municipality of Isparta/UBM
Project Manager

With regard to the population forecast of 300.000 inhabitants, the main units of solid waste recycling, treatment and disposal facilities for municipal, industrial, hospital and hazardous waste were elaborated/investigated. This includes: Middle and long term concept for implementation of recycling activities, site selection of treatment and disposal facilities, rehabilitation concept for the existing landfill site, technical design for treatment and sanitary landfilling, tax study and implementation programme for further activities.

1995

Feasibility Study for the Disposal of Sewage Sludge in the City and District of Heilbronn, Germany

Municipality of Heilbronn
Project Manager

Prognosis of sewage sludge in quantitative and qualitative terms up to the target year 2005 in the city and district of Heilbronn (approx. 500.000 inhabitants). Investigation of technical and environmental requirements for recycling and treatment for the Examination of different types of treatment for solid waste and sludge with respect to economic and environmental aspects.

1995

Up-dating Prognosis for the Region of Franconia, Germany
Districts of Heilbronn, Main-Tauber, Hohenlohe, Schwäbisch-Hall and City of Heilbronn

Project Manager

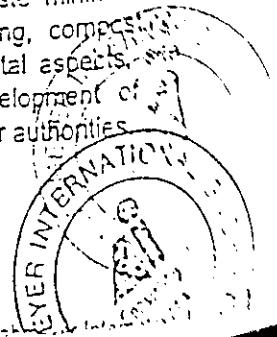
Up-date of prognosis for waste generation elaborated by LI in 1993 based on the actual waste development up to June 1995 and on the present development of waste management.

1994-95

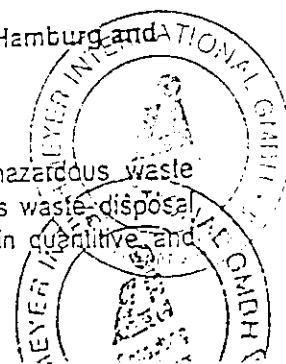
Integrated Solid Waste Management Concept, Site Selection and Feasibility Study for the Greater Pueris Montt Area, Chile
Chilean Ministry for Planning (MIDEPLAN) and Inter-American Development Bank (IDB)

Project Manager

Integrated-waste management concept for a district with 150.000 inhabitants according to minimisation, utilisation, treatment and deposition of municipal, industrial and hospital waste, forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005, examination of waste minimisation concept and investigation of alternatives in the residues recycling, compacting, treatment and disposal with respect to economic and environmental aspects, site selection for solid waste treatment and disposal facilities. Development of implementation concept and management of a training programme for authorities

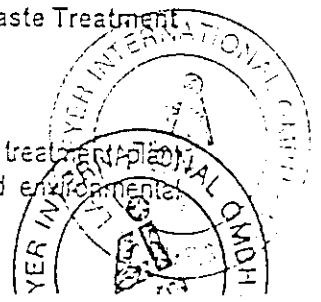


- 1994-95 Integrated Solid Waste Management Concept, Site Selection and Feasibility Study, Germany
District of Bergstraße, Hesse
Project Manager
Integrated waste management concept for a district with approx. 250.000 inhabitants, according to minimisation, utilisation, treatment and deposition of urban waste, forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005, examination of alternatives in the recycling treatment and disposal of residual waste with respect to economic and environmental aspects, tax study and site selection for solid waste treatment and disposal facilities with a geographical information system (GIS). Development of an implementation programme.
- 1993-94 Integrated Solid Waste Management Concept, Site Selection and Feasibility Study for 4 Districts in Rhineland-Palatinate, Germany
Authorities of the Districts of Altenkirchen, Neuwied, Westerwald und Rhein-Lahn
Project Manager
Integrated waste management concept for 4 districts (approx. 620.000 inhabitants) according to minimisation, utilisation, treatment and sanitary landfilling of urban waste, forecast of the solid waste generation in quantitative and qualitative terms up to the target year 2005, reevaluation of tariff and tax system, examination of a public relation programme, examination of alternatives in the treatment and disposal of residual waste with respect to economic and environmental aspects, evaluation of models for public-private partnership cooperation, site selection for solid waste treatment and disposal facilities with a geographical information system (GIS). Development of an implementation programme.
- 1992-93 Concept, Site Selection and Feasibility Study for Treatment and Disposal Facilities of Solid Waste, Germany
Districts of Heilbronn, Main-Tauber, Hohenlohe, Schwäbisch-Hall
Project Manager
Concept for the treatment of solid waste for a region with 5 districts (approx. 700.000 inhabitants), investigation and prognosis of the solid waste generation up to the target year 2003, analysis and assessment of processes for the waste treatment, development of a combined concept for the biological and thermal waste treatment, and site selection for waste treatment and disposal facilities with a geographical information system (GIS).
- 1992-93 Demand Analysis of the Solid Waste Generation of Munich
City of Munich, Germany
Project Manager
Forecast of the solid waste generation of Munich (approx. 1 million inhabitants) in quantitative and qualitative terms up to the target year with regard to municipal commercial and construction waste, investigation of influences on the future waste generation, determination of waste recycling and disposal streams up to the year 2003, determination of the necessary capacities for recycling, composting, incineration and sanitary landfilling.
- 1992-93 Regional Demand Analysis of the Hazardous Waste Volumes in Hamburg and Northern Germany
Abfallverbrennungsgesellschaft (AVG) Hamburg, Germany
Project Manager
Assessment of existing situation and demand analysis for the hazardous waste recycling and disposal facilities for private enterprise in hazardous waste disposal services in Hamburg. Prognosis of hazardous waste generation in quantitative and



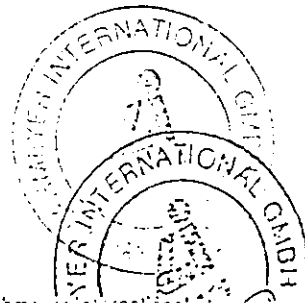
qualitative terms up to the target year 2003. Determination of the necessary recycling and treatment capacities (capacity 120.000 Mg/a) as well as specific types of treatment.

- 1992-93 Demand Analysis and Environmental Assessment Study for a Thermal and Biological-Mechanical Waste Treatment Plant, Germany
Zweckverband Abfallentsorgung Rangau, Fürth
Project Engineer
Reevaluation of existing studies on site selection and feasibility studies. Demand analysis and comparison of processes regarding thermal and biological-mechanical waste treatment in consideration of environmental relevance and analysis criteria within waste management (capacity 100.000 Mg/a).
- 1992 Masterplan for Water Supply, Waste Water, Solid Waste and Contaminated Sites, Germany
Ministry of Environment and Regional Planning, Potsdam, Brandenburg
Project Manager
As part of a masterplan for sustainable development of the Federal State of Brandenburg a masterplan for water supply, waste water, solid waste and contaminated sites was elaborated. This included the evaluation of data for future plannings, analysis of existing reports, strengths and weaknesses analysis for the design of the master plan according to the regional and state development in Brandenburg (approx. 2.5 million inhabitants) up to the year 2005.
- 1992 Research Study of Environmental Legislation Standards in the Member States of the EU, Germany
Lahnmeier Aktiengesellschaft Frankfurt
Project Manager
Analysis of the influence of the different environmental legislation standards in the EU member states on competition ability of German enterprises of mechanical engineering plant construction. This included the assessment of existing environmental legislation standards in the different countries. Elaboration of economic consequences by development of a comprehensive input-output analysis (market model). Elaboration of measures for adapting the different levels of environmental legislation in EU member countries.
- 1991-92 Site Selection for a Sanitary Landfill Site, Germany
Zweckverband Abfallentsorgung Breisgau (ZAB), Freiburg
Project Manager
Development of a methodology for site selection for a sanitary landfill and site assessment for 2 districts (approx. 400.000 inhabitants) regarding geological and hydrogeological, economic and ecologic analysis criteria. Determination of a methodology, processing of the cartographical basics within a Geographical Information System, as well as development of a manual for administrative measures for further implementation. Development of a public relations programme for the strengthening of public acceptability.
- 1991-93 Feasibility Study and Plant Design for a Biological-Mechanical Waste Treatment Plant, Germany
Zweckverband Abfallentsorgung Breisgau (ZAB), Freiburg
Project Manager
Feasibility study and plant design of a biological-mechanical waste treatment plant with a capacity of 180.000 Mg/a. Assessment of the technical and environmental



requirements of site suitability with respect to construction, technical, economic and ecological optimisation demands

- 1990-91 Research Project and Masterplan of Urban and Hazardous Waste Management and Legislation, Germany
Federal Ministry of Environment, Nature Protection and Reactor Safety,
Mecklenburg-Vorpommern
Project Manager
Research project (approx. 2.2 million inhabitants) for the implementation of the German waste management and legislation on the territory of the former GDR. Assessment of existing situation of urban waste disposal and hazardous waste disposal, evaluation of immediate measures as well as medium and long-term measures regarding waste minimisation. Disposal as well as residual waste treatment.
- 1990-91 Logistical Concept for Hazardous Waste Transport, Germany
Hazardous Waste Disposal Company, Baden-Wuerttemberg
Project Manager
Transport study on hazardous waste disposal with respect to pre-treatment, incineration and deposition of hazardous waste. Analysis of logistical possibilities, technical standards and financial results for hazardous waste transport on street and/or railroad.
- 1990 Feasibility Study for a Recycling Concept for Construction and Demolition Debris, Germany
District of Marburg-Biedenkopf
Project Manager
Recycling concept (approx. 150,000 inhabitants) for construction and demolition debris, assessment of existing situation, prognosis of the construction and demolition debris generation, analysis of the market situation, site selection and analysis of disposal alternatives.
- 1989-90 Research Project on the Transport Market and Logistical Study on Hazardous Waste Disposal, Germany
Deutsche Bundesbahn AG, Mainz
Project Manager
Transport market and logistical study on hazardous waste disposal in the Federal Republic of Germany with respect to the development of the European Community market, analysis of the legal framework according to waste and hazardous waste transport, and development of a prognosis model (Quantification of possible transport potentials).
- 1989-90 Expert Report on Solid Waste Incineration, Germany
District of Ludwigsburg
Project Engineer
Expert report on the importance of solid waste incineration regarding waste management and environment, analysis of the environmental impacts as well as the consequences with respect to waste legislation.



- 1989-90 Research Project of the Approval Procedures for Waste Disposal Plants,
Germany
Federal Ministry of Environment, Nature Protection and Reactor Safety, Berlin
Project Manager
Research project on the optimisation of the approval procedures for waste disposal
plants, assessment and analysis of the approval demands for waste disposal plants in
the Federal Republic of Germany, and elaboration of a guideline for authorities and
tenderers to accelerate the approval procedure.
- 1989 Feasibility Study for Shredded Waste Disposal, Germany
Thyssen-Sonnenberg AG, Duisburg
Project Engineer
Feasibility study for shredded waste disposal, assessment of disposal possibilities,
evaluation of disposal shortages.
- 1989 Research Project for Hazardous Waste, Germany
Hessian Ministry of Environment, Nature Protection and Reactor Safety,
Wiesbaden
Project Engineer
Research project for primary evaluation of hazardous waste, especially in residues of
flue gas cleaning as well as incineration residues in the Federal Republic of Germany.
Assessment of existing situation, analysis of the state-of-the-art and future demand of
disposal capacities.
- 1988-89 Environmental Impact Assessment for a Coal-fired Power Plant, Germany
Preussen Elektra, Hannover
Project Engineer
Environmental impact assessment for a coal-fired power plant according to the EC
directive (environmental impact investigation, 1986) analysis of the environmental site
suitability.
- 1988-89 Environmental Impact Assessment for a Hazardous Waste Incineration Plant,
Germany
Landesentwicklungsgesellschaft Baden-Württemberg (LEG)
Project Engineer
Environmental impact assessment for a coal-fired power plant according to the EC
directive (environmental impact investigation, 1986) analysis of the environmental site
suitability.
- 1988 Analysis of the Demand of Future Waste and Hazardous Waste Incineration
Plants, Germany
Project Engineer
Analysis of the demand of future waste and hazardous waste incineration plants in the
Federal Republic of Germany. Analysis of regional structures, waste management
data and the disposal situation.
- 1987 Expert Report for a Waste Incineration Plant, Germany
North Rhine-Westphalia
Project Engineer
Expert report on implementation and site possibilities for a thermal waste treatment
plant, site selection analysis, analysis of state of the art as well as analysis of
environmental impacts.



1986 Feasibility Study for an Integrated Urban Waste Management Concept,
 Germany
 Darmstadt-Dieburg
 Project Engineer
 Feasibility study for an integrated waste management concept for a district with approx. 300.000 inhabitants, assessment of the existing situation, evaluation of the waste management data, waste management concepts regarding waste minimisation as well as waste utilisation possibilities and deposition of urban waste.

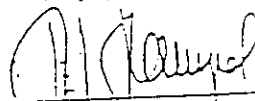
1986 Municipal Work Sheet "Solid Waste Disposal 2000", Germany
 Project Engineer
 Elaboration of a work sheet "Solid Waste Disposal 2000" regarding the municipal waste management planning, according to minimisation, utilisation, treatment and deposition of solid waste.

Languages:

	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	good	good	good
French:	fair	fair	poor
Spanish:	fair	fair	poor

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.



 Signature of Staff Member or
 authorized official from the firm

Date: 22.05.1997
 Day/Month/Year

Selected Publications

RASCH, B.; HASEL, B.: "Stand der biologisch-mechanischen Abfallbehandlung in Deutschland",
 Proceedings of the Fachsymposium Mechanisch-biologische Abfallbehandlung, Bad Ems, 1995.

RASCH, B.; HASEL, B.; KOESTER, W.; SATTEL, T.; THRAEN, D.: "Innovative statische Verfahren zur
 kostengünstigen biologisch-mechanischen Restabfallbehandlung", in Verfahren und Stoffe in der
 Kreislaufwirtschaft, Thomá-Kozmiensky, K.J. (Ed.). pp. 293-301, EF-Verlag, Berlin: 1995.



RASCH, B.; v. HERMANI, E.; ROOS, C.; MUCKE, A.: "Kombinationsmodelle von biologisch-mechanischer und thermischer Abfallbehandlung", Abfallwirtschaft Nr. 11, 7/95, pp. 664-669.

RASCH, B.: "Erfahrungsbericht zu regionalen integrierten Abfallwirtschaftskonzepten aus Sicht eines Ingenieurunternehmens", Proceedings of the Expert-Hearing Abfallwirtschaft Region Bonn, 1995.

RASCH, B.: "Integrierte regionale Abfallwirtschaft im Rechtsrheinischen Rheinland-Pfalz", Proceedings of the Regional Conference of the Districts Altkirchen, Neuwied, Rhein-Lahn und Westerwaldkreis, Bad Ems, 1994.

RASCH, B.: "Sanierungsmöglichkeiten von Deponien unter besonderer Berücksichtigung von Umlagerung und biologisch-mechanischer Behandlung", Proceedings of the Expert-Hearing Zentraldeponie Piesberg, Osnabrueck, 1994.

RASCH, B.; MEYER, F.: "Verfahrensanalyse Biologisch-mechanischer und thermischer Restabfallbehandlungsverfahren", Müll und Abfall, Heft 3/93, Erich Schmidt Verlag, Berlin: 1993, pp. 762-775.

RASCH, B.: "Verbesserung von Zulassungsverfahren für Abfallentsorgungsanlagen - Ansatzpunkt zur Verfahrensbeschleunigung", Yehrike, H. (Ed.) Erich Schmidt Verlag, Berlin: 1993, pp. 111-132.

RASCH, B.: "Zulassungsmanagement und Modelle zur Verfahrensbeschleunigung bei der Genehmigung von Abfallentsorgungsanlagen", Kölnar Abfalltage 1992, Gutke, K. (Ed.), K. Gutke Verlag, Cologne, pp. 133-151.

RASCH, B.; SCHLUETER, A.: "Ökologische Reform in Europa- Umwelrecht im EG-Binnenmarkt", Roth K.; Sander, R. (Ed.), Bund Verlag, Cologne: 1992, pp. 67-68.

RASCH, B.: "Bearbeitungsumfang sowie Vorgehensweise zur Umsetzung der Baurestoffverwertung bei entsorgungspflichtigen Körperschaften", Proceedings of the VDI-Seminar "Bauen im Zeichen des Umweltschutzes", Hamburg, 1991.

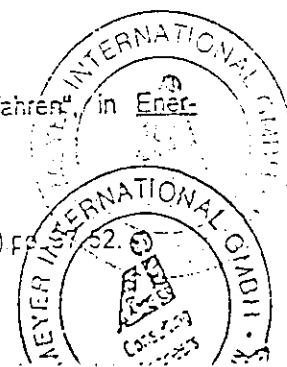
RASCH, B.: "Grundlagen bundesdeutschen Abfallrechts und abfallwirtschaftliche Fachplanung in der Bundesrepublik", Proceedings of the 2. Umweltseminar IPRO, Dresden 1991.

RASCH, B.: "Verbesserungsmöglichkeiten bei umweltrechtlichen Zulassungsverfahren", Proceedings of the Seminar of the Ministry of Environment North-Rhine-Westfalia on "Beschleunigung von Genehmigungsverfahren", Duesseldorf, 1990.

RASCH, B.: "Das UVP-Verfahren im Planungs- und Zulassungsprozeß am Beispiel einer Sonderabfallverbrennungsanlage", in Behandlung von Sonderabfällen Vol. 3; Thomé-Kozmiensky (Ed.), pp. 21-32. EF-Verlag, Berlin: 1990.

RASCH, B.: "UVP bei Großprojekten - Ein neuer Baustein im Zulassungsverfahren", in Ener-giewirtschaftliche Tagesfragen, Heft 2/89, pp. 163-168.

RASCH, B.: "Entsorgung 2000", in Bonner Energiereport 1988; Schenkel, Kassing (Ed.), pp. 152.



CURRICULUM VITAE

Proposed Position: Solid Waste Management Engineer

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: BERND HASEL
Profession: Environmental Engineer
Date of Birth: 21.03.1968
Years with Firm: 3 years
Nationality: German

Detailed Tasks Assigned:

- Investigation of the necessary waste management data for the project design
 - Forecast of waste amount
 - Preparation of tender documents and execution of tendering process
-

Key Qualifications:

Environmental engineer with experience in consulting in the field of environmental protection especially waste management and waste treatment. Special experiences in the elaboration of waste management concepts and feasibility studies as well as in process design for the construction of solid waste treatment plants, with profound experience in biological-mechanical waste treatment. Assessment of environmental impacts of waste treatment plants

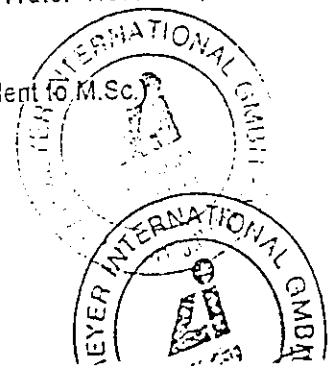
Relevant experience related to tasks assigned:

- 1998, Tendering of waste management services for the district Neuwied, Germany
 - 1997, Pilot project in Solid Waste Management, Slovenia
 - 1996, Feasibility Study mechanical-biological waste treatment, Germany
 - 1995, Emergency Aid Programme for Epidemic Control, Waste Management, Water Supply and Waste Water Disposal in the Una-Sana-Canton, Bosnia-Herzegovina
-

Education:

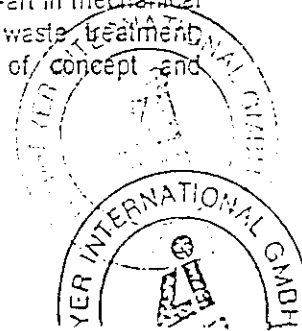
1989-1995 Studies of Environmental Engineering at the Technical University Berlin, Germany
Specialisation in: Waste Management, Water Supply and Waste Water Treatment,
Environmental Chemistry

1995 Graduation as Diplom-Ingenieur Technischer Umweltschutz (equivalent to M.Sc.)
MSc Thesis: Biological-Mechanical Waste Treatment

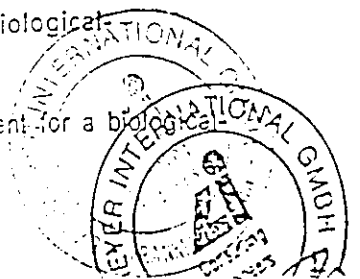


Employment Record:

- 1996
to date LAHMEYER INTERNATIONAL GMBH
Consulting Engineers, Frankfurt/Main
Division Environmental Engineering and Protection
- 1998 Tendering of waste management services for the district Neuwied, Germany,
Project Engineer
Preparation of the international tender documents for collection of residual waste,
hazardous waste and valuable materials, preparation of service contracts.
- 1997 Site Selection and Investigation of Logistics for decentralized Thermal Waste
Treatment Plant, Germany
Anonymous
Project Engineer
Analysis and evaluation of potential sites under consideration of waste management,
constructional and ecological criteria, investigation of optimization options in terms of
transport logistics in a split transport system (road/rail), identification of further imple-
mentation measures.
- 1997 Concept for future solid waste disposal facilities for 5 Districts in Rhineland-
Palatinate, Germany
Authorities of the Districts Altenkirchen, Neuwied, Westerwald and Rhine-Lahn
Deputy Project Manager
Review of the existing of sanitary landfill sites with regard to further rehabilitation
measures. Investigation of necessary investment costs and cost-benefit analysis for
different alternatives for solid waste disposal. Elaboration of a sustainable operation
and rehabilitation concept regarding the existing sanitary landfills in the region.
- 1997 Pilot project in Solid Waste Management and technical infrastructure facilities,
Slovenia
European Union
Project Engineer
Integrated waste management concept for a district with a population of 200.000 in
terms of minimisation, utilisation, treatment and deposition of municipal, industrial
and hospital waste; forecast of the solid waste generation in quantitative and
qualitative terms up to the target year 2005; examination of waste minimisation
concept and investigation of alternatives in the residues recycling, composting,
treatment and disposal with respect to economic and environmental aspects; site
selection for solid waste treatment and disposal facilities. Development of an
implementation concept and management of a training programme for authorities.
- 1996-97 Feasibility Study mechanical-biological waste treatment, Germany
Administration Union of Waste Disposal of West Saxony
Project Engineer
Elaboration of the technical and economical feasibility of a combination of
mechanical-biological and thermal waste treatment
Special tasks assigned:
investigation of the local conditions; description of the state-of- the-art in mechanical
biological waste treatment and the combination with thermal waste treatment;
preparation of an investigation of manufacturers, derivation of concept and
description of the economical and technical feasibility.



- 1996 Emergency Aid Programme for Epidemic Control, Waste Management, Water Supply and Waste Water Disposal in the Una-Sana-Canton, Bosnia-Herzegovina
Foreign Office of the Federal Republic of Germany
Project Engineer
Elaboration and implementation of a work programme to prevent danger of epidemic diseases for the population of the Una-Sana Canton, Bosnia-Herzegovina.
Special tasks assigned:
identification of areas (hot spots) with an immediate need for removal of waste accumulation, carcasses and their proper disposal; identification of the actual situation in the canton related to solid waste management, water supply and waste water; implementation of the identified measures; identification of recommended actions for further measures-programme phase 2 and preparation of a pre-feasibility study.
- 1996 Research Project: Waste Minimisation Strategies and Programmes in the OECD Member Countries
Bundesministerium für Umweltschutz, Reaktorsicherheit und Naturschutz
Project Engineer
Comprehensive work programme supporting the OECD's Waste Management Policy Group including the elaboration of a detailed questionnaire on waste minimisation. Based on the completed questionnaires: report on status quo of waste minimisation policy in OECD member states. Analysis of success and failure of instruments and measures aiming at supporting waste minimisation. Identification of future approaches to waste minimisation nationwide and on international level (OECD, EC, UNEP)
- 1996 Waste Management at the New Athens International Airport, Spata, Greece
AIA Athens International Airport SA, Athens, Greece and HTP Hochtief Project Development GmbH, Essen, Germany
Project Engineer
Elaboration of a preliminary integrated waste management concept for the New Athens International Airport. Special tasks assigned:
Identification of technical and legal requirements for the airport's waste management system; Elaboration of a technical and logistical concept for waste disposal.
- 1995 = PREUSSAG ANLAGENBAU GMBH,
Division: Environmental Technology
Zwingenberg, Germany
Rehabilitation of a military area contaminated with mineral oil, Preschen, Germany
Battelle Institut, Frankfurt
Construction Supervisor
Commissioning of soil vapour extraction plant and catalytic combustion of exhaust gas. Special tasks assigned:
Installation of the plant, optimization of the process; implementation of exhaust air monitoring and analysis; coordination of plant operation with approval authorities
- 1994-95 LAHMEYER INTERNATIONAL GMBH
Consulting Engineers, Frankfurt/Main
and CITY of FREIBURG, Eigenbetrieb Abfallwirtschaft
Large scale experiment (pilot-plant) during the planning of a biological-mechanical waste treatment plant in Freiburg, Germany
Scientific Assistant
Planning, elaboration and evaluation of a large scale experiment for a biological-mechanical waste treatment plant. Special tasks assigned:



Elaboration of large scale experiments for the mechanical and biological treatment of municipal solid waste; study of environmental impacts; performance of in situ experiments on volume reduction and deposition quality (leachate and landfill gas); co-ordination of appointed monitoring institutes and coordination with approval authorities; elaboration of final report for the regional authorities.

Languages:

	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	excellent	excellent	excellent
French:	good	good	fair

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.

Signature of Staff Member or authorized official from the firm _____ Date: _____
 Day/Month/Year

Publications and Presentations:

HASEL, B., RASCH, B., SCHLUETER, A.: "Abfallwirtschaft in OECD Ländern und der EU: Strategien - Instrumente - Konzepte", presented at the 17. Abfallwirtschaftliches Fachkolloquium, Saarbrücken, 25.-26.2.1997, published in: Umsetzung und Auswirkungen des Kreislaufwirtschaftsgesetzes, Saarbrücken: 1997, Kommunaler Abfallentsorgungsverband Saar (KABV).

HASEL, B., THRÄN, D.: "Nachweis erbracht - Die biologisch-mechanische Behandlung verbessert die Ablagerungseigenschaften von Restmüll", in: Müllmagazin, 2/1995, pp. 31-34.

RASCH, B., KÖSTER, W., SATTEL, T., HASEL, B., THRÄN, D.: "Innovative statische Verfahren zur kostengünstigen biologisch-mechanischen Restabfallbehandlung", in: K.J. Thomé-Kozmiensky (Ed.): Verfahren und Stoffe in der Kreislaufwirtschaft, EF Verlag für Energie- und Umwelttechnik, 1995, pp. 293-301.

HASEL, B.: "Umweltauswirkungen der biologisch-mechanischen Restabfallbehandlung", presentation at the workshop: "Methoden und Kriterien zur Vorbehandlung der Standortsuche für Abfallbehandlungsanlagen", Akademie für Technikfolgenabschätzung in Baden-Wuerttemberg, Vaihingen, March 1995.

HASEL, B., RASCH, B.: "Überblick über die Entwicklung und Planung der biologisch-mechanischen Restabfallbehandlung", presentation at the conference: "Stand der Planung und Realisierung der biologisch-mechanischen Vorbehandlung von Restabfällen"; Rhine-Lahn-District, Bad Ems, October 1995.



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CURRICULUM VITAE

Proposed Position: Solid Waste Engineer

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: ISMET KUTAY
Profession: Environmental Engineer
Date of Birth: 24.04.1963
Years with Firm: 1 year
Nationality: German

Membership of Professional Societies:

none

Detailed Tasks Assigned:

- Investigation of the necessary waste management data for the project design
 - Development of the technical concept
 - Elaboration of the design parameters for the sanitary landfill, sanitary landfill, transfer station and street sweeping and waste collection
 - Design, operation concept and tendering for the solid waste plant components
-

Key Qualifications:

Environmental engineering for technical infrastructure projects with 6 years of professional experiences. Broad knowledge in the field of municipal, industrial and hazardous waste. This includes: Project management for overall integrated recycling and disposal concepts and masterplans on municipal, state or national level; site selection, environmental impact assessment studies, feasibility studies, design work and tendering for composting and digestion plants, treatment and disposal facilities, as well as rehabilitation of sanitary landfills; implementation programmes with regard to tariff and tax studies, operation concepts, institutional strengthening and staff training.

Relevant experience related to tasks assigned:

- 1995-97, Solid Waste Management Greater Tehran, Iran
- 1995-96, Solid Waste Management Rjasan, Russia
- 1993-94, Hazardous Waste Management Algeria

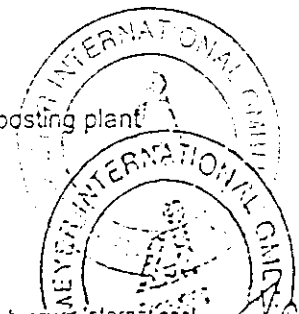


Education:

- 1982-1991 Studied at the Technical University Berlin, course in Energy and Process Engineering, Environmental Technology, Graduated as chartered environmental engineer, concentrating on waste management, management of hazardous wastes, biological processes for waste treatment.
- 1991 Graduation as Dipl.-Ing. (equiv. to M.Sc.) in Environmental Engineering
-

Employment Record:

- since 1997 LAHMEYER INTERNATIONAL GMBH
to date Consulting Engineers, Frankfurt/Main, Germany
Division Environmental Engineering and Protection
- 1992-1997 BC Berlin-Consult GmbH
- 1995-1997 Solid Waste Management for Greater Tehran/IRAN
Project Manager
Solid Waste Management for Greater Tehran/IRAN including an 5 year Action-Plan and a 25 year Strategic-Plan, examination and improvement of the existing composting plant, the landfill process and the overall waste management, recommendations for suitable environmental laws and regulations and a responsible organisation in order to monitor, control and evaluate the solid waste management
- 1995-1996 Preparation of Solid Waste Management for the town Rjasan, Russia
Project Engineer
Working out measures to improve the actual situation and assistance during their implementation, preparation of pilot-projects to check the suitability of the worked out measures
- 1995 Environmental relieve concept
Project Engineer
Preparation of a concept to relieve environmental pressures on student housing in Berlin, GERMANY and providing suggested courses of action for implementing these measures
- 1993-94 Hazardous waste management system for Algeria
Project Manager
Preparation of a hazardous waste management system for Algeria (commissioned by The World Bank, preparation of waste disposal concepts for industry, works inspections and evaluations, and providing suggested courses of action.
- 1994 Utilisation of waste timber
Project Engineer
Concept for an installation to utilise waste timber, consisting of a composting plant and a plant for using the heat obtainable from wood, GERMANY.



- 1994 Promoting small and medium-sized businesses in the environmental sector in Brandenburg, GERMANY.
Project Engineer
- 1993 Analysis of the actual pollution situation resulting from waste materials in the Magdeburg-Rothensee industrial area, GERMANY.
Project Engineer
- 1992 Investigations into the composting of the sludge obtained from the processing of waste fats, GERMANY.
Project Engineer
- 1992 Waste management for the city of Rostock, Germany
Project Manager
Waste management concept of the city of Rostock, GERMANY, assistance in implementing the measures that have been worked out.
- 1992 Tendering the compost plant for the city of Rostock, Germany
Project Manager
Invitation to tender, approval planning, monitoring of installation work and technical approval of the Rostock composting plant, GERMANY.
- 1992 Assessing the hazards presented by the former industrial landfill in Bernau county, GERMANY.
Project Engineer
- 1992 Investigations into ways of increasing the throughput of the Berlin-South refuse handling plant, GERMANY.
Project Engineer
- 1992 Study into ways of applying sewage sludge regulations within the administrative area of the city of Rostock.
Project Engineer
- 1991 GUT mbH
Invitation to tender for emission recording centres for power plants, Germany
Evaluation of emissions from landfills
Evaluation of dust emissions from a timber-processing plant
Implementation and evaluation of immission forecasts for a large lignite processing plant, assessing the hazards of waste pollutants (gasworks)
- 1988-1990 Technical University of Berlin
Investigations into the environmental pollution in various areas, and the problems associated with environmental systems and waste management, carrying out waste analyses




Languages:

	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	good	good	good
French:	fair	fair	poor
Turkish:	poor	poor	poor

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.



Signature of Staff Member or
authorized official from the firm

Date: 22.09.97
Day, Month, Year



CURRICULUM VITAE

Proposed Position: Expert for Site Selction and Solid Waste Management

Name: Dr. Layla Philippe KHALAF
Address: Municipality Street, Philippe Khalaf Apt.,
Zouk Mosbeh, Lebanon. Ph. 09-218557, 03-220627
American University of Beirut,
Geology Department
P.O.Box: 11-0236-26
Notre Dame University,
Ph. 00961-9-213950/1
Fax 00961-9-213771 P.O.Box: 72 Zouk Mikael
E-Mail: lkhalf@ndu.edu.lb

Date of Birth: 11.10.1959
Nationality: Lebanese
Marital Status: single

Education:

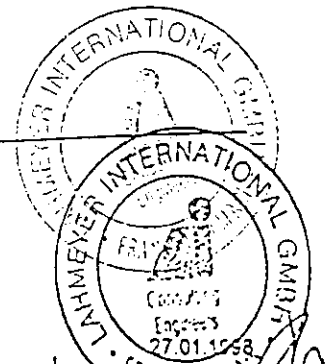
1975 Sciences Experimentales, Ecole secondaire des filles de la Charite, Beirut
1983 B.Sc., Geology, American University of Beirut
1987 M.Sc., Geology, American University of Beirut
1989-90 German language course, Goethe Institut-Göttingen, Germany
1995 - Ph.D., Environmental Geology at the Geological-Palaontological Institut of the
"Westfälische Wilhelms University", Münster, Germany

Academic Honors:

American University of Beirut, Dean's Honor

List: 1st Semester-1981,
2nd Semester-1981,
1st Semester-1982

PhD. Final Appreciation: very good = 1

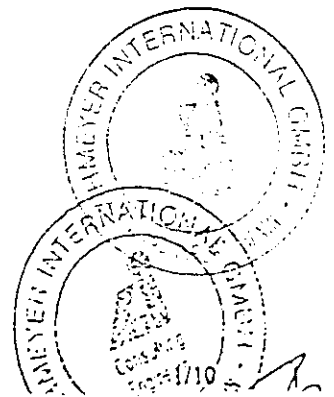


REGION N°2

OFFRE GLOBALE

TABLEAUX RECAPITULATIFS

ANNEXE D1



Experience:

- 1985-1987 Teaching Assistant at the American University of Beirut Geology Dept.
- 1987-1988 Research Assistant at the American University of Beirut, Geology Dept.
- 1983-1984 Worked with the Municipality Münster-Dept. of Environment, on danger assessment of inherited waste and contaminated sites.
- 1994-1995 Research Assistant at the main library of the "Westfälische Wilhelms Universität" Münster, Germany.
- 1995 Training at Lahmeyer Int. (Consulting Engineers for Energy, Water, Environment, Transportation) Frankfurt, Germany
- 1995 Professor at Notre Dame University NDU, Louaize, Faculty of Natural and applied Sciences, Zouk Mosbeh, Lebanon
- 1995 Professor at the American University of Beirut AUB, Faculty of Arts and Sciences, Geology Dept, Beirut, Lebanon
- 1996 Consultant of the Ministry of Environment, Lebanon
-

Publications:

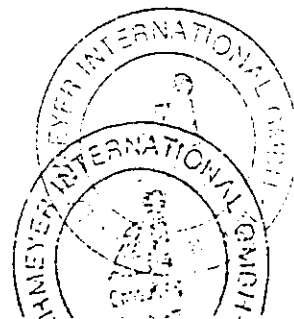
- 1989 Lebanese glass industry during crisis, silica sand resources & market diversification. in Industrial Minerals, 9: 71-73 London
- Development of an analysis method for polycyclic aromatic hydrocarbons (PAHs) in soil with regard to danger assessment of inherited wastes. (PhD Dissertation) in German.
-

Conferences:

- 1987 Presented paper: The economic geology of the white quartz sands as raw materials for the glass industry of Lebanon. at the 10th Conference of the Lebanese Association for the advancement of Science
-

Languages:

Arabic, French, English and German: spoken and written



CURRICULUM VITAE

Proposed Position: Technical Design and Construction Supervision

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: BURGHARD ROMPEL
Profession: Civil Engineer
Date of Birth: 25.11.1947
Nationality: German

Membership of Professional Societies: none

Detailed Tasks Assigned:

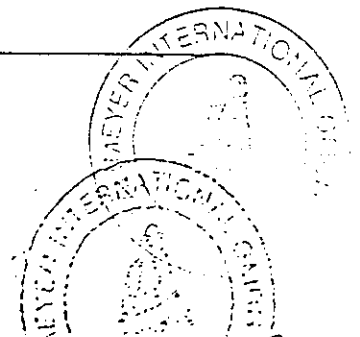
Technical design and construction supervision of landfill and transfer stations; Preparation of tender documents.

Key Qualifications:

Civil engineer with special training in the field of domestic water supplies and with extensive experience in waste management projects. Specialist for waste transfer stations, waste transportation, waste separation and final landfilling. Profound knowledge in the planning, site selection and operation of sanitary landfills including leachate water treatment and gas collection. Planning, supervision of works and training measures in the fields of waste management, sewerage systems and waste treatment plants.

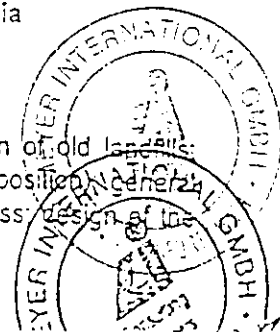
Education:

1969-1975 Studies in Hydraulic Engineering at the Technical University Darmstadt, Germany
1975 Graduation as Dipl. Ing. (equiv. to M. Sc.) in Civil Engineering; M.Sc.-thesis: The resistance of thin water films on rough surfaces.
Additional training in various seminars in the fields of waste management, sewage treatment, environmental impacts and project management.



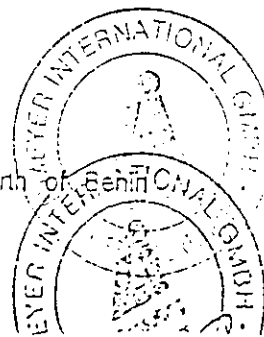
Employment Record:

- since 1993
to date
- IGIP - Ingenieur-Gesellschaft für Internationale Planungsaufgaben mbH,
Darmstadt, Germany
Head of Department Sewage and Waste Management
Responsibilities: preparation of feasibility studies; evaluation of existing facilities;
development of new projects; environmental impact studies; evaluation of liquid and
solid waste projects for clients in German industry and public sector; preparation of
offers.
- 1997
- Waste Water and Solid Waste Disposal , Khénifra, M'Rirt, Morocco
KfW
Expert for the tendering of sewer cleaning equipment, flusher, collection containers,
garbage bins, vehicles for collection and transportation of waste.
- 1996
- Water Supply and Sewerage System for Trinidad, Bolivia
COATRI, KfW
Project Monitoring
Checking of existing feasibility studies and updating of existing plans; drilling of 5
drinking water wells; preparation of working plans for the water supply network; design
and construction of two elevated 1,500m³ tanks; preparation of working plans and
construction of the entire sewerage; design and construction of a sewage pumping
station; design and construction of a lagoon treatment plan.
- 1995-96
- Treatment of Industrial Sewage, Tunisia
ONAS Office National Assainissement, KfW
Project Monitoring
Elaboration of computerised inventory of industrial effluents, introduction of a
Geological Information System (GIS); updating of effluent standards, evaluation of
deficiencies of the existing control system, preparation of direct discharge regulations;
staff training in the field of industrial sewage treatment; sewage treatment; elaboration
of standard pre-treatment measures for different industrial sectors (textiles, soap,
beverage and food, slaughterhouses and tanneries).
- 1995-96
- Environmental Management Project, Waste Management Sector, Dalyan/
Köycegiz, Turkey
APSA, KfW
Project Manager
Technical monitoring of on-site data collection with regard to waste quantities and
composition as well as the existing transportation and disposal system; advice on the
optimisation of the collection and transportation system; determination of collecting
equipment (containers and vehicles); expert opinion on the landfill design provided by
the client with regard to: site selection, environmental impact, technical equipment
including the sealing systems and the measures designed to prevent long-term
emissions.
- 1994-96
- Waste Management for 11 Towns in the Medjerdah Valley, Tunisia
Construction of Sanitary Landfills for 4 Towns
ONAS, KfW
Project Co-ordination and Planning of Project Components
Environmental Impact Assessment and site selection; rehabilitation of old landfills;
waste collection in 4 towns (analysis of waste quantities and composition); design of
pre-treatment techniques and examination of the composting process; design of the



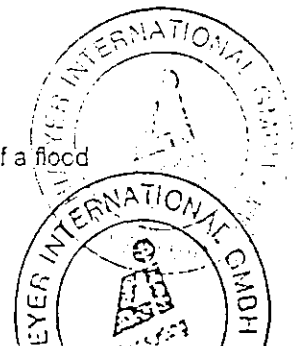
landfills in accordance with adapted standards, base and surface sealing, catchment of seepage water, gas collection; comparison of different options, calculation of the prime and operating costs; operation of the landfills, waste unloading technologies; commissioning, staff training.

- 1993-96 Sewage Treatment Plant Nidderau, Germany
Municipality of Nidderau
Project Co-ordination and Planning of Project Components
Preparation of feasibility study; complete design with cost estimate including approval by the authorities; elaboration of working plans.
- 1995 Sewage Treatment Plant in Kayseri, Turkey
KfW, Municipality of Kayseri
Project Co-ordination
Design of a mechanical-biological treatment plant for about 800,000 inhabitants; sludge disposal planning (incineration, composting, tipping or agricultural use); comparison of different options including cost-benefit analysis.
- 1995 Sewerage System at the Stollenweg and Fasanerie Quarters, Wiesbaden, Germany
Municipality of Wiesbaden
Project Manager
Preliminary design; preparation of documents for approval by the authorities.
- 1995 Sorting Plant for Residual Waste from Building Sites, Frankfurt/Main, Germany
Private Investor
Project Manager
Preparation of documents in accordance with the German Federal Emission Control Act; planning of outdoor installations, petrol station, sewerage system, roads and water supply; landscape conservation planning.
- 1994 Solid Waste Disposal in the Gaza Strip, Palestine
Private Investor
Project Manager
Identification of the project area; talks with city officials, authorities, technical service personnel and ecologists; analysis of the composition and volume of residential and commercial waste; identification of available staff and transportation capacities; preparation of a catalogue of priority measures to be taken in the fields of waste collection, transportation and tipping; identification of long-term measures and cost estimate.
- 1993 Sewage Treatment Scheme, Johannegeorgenstadt, Germany
Project Manager
Evaluation of the existing treatment facilities and development of a new scheme for liquid and solid waste for 3 medium-sized cities.
- 1993 Infrastructure Project in Northern Benin
African Development Bank#
Environmental Expert
Environmental Impact Study for an infrastructure project in the north of Benin (covering e.g. 450 km of national roads).

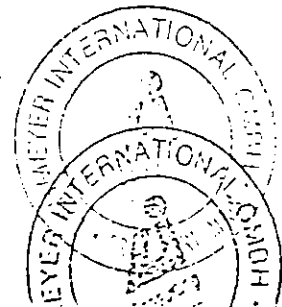


- 1993 Flood Retention Basin "Am Dorsheimer Weg", City of Mainz, Germany
Project Manager
Precipitation run-off model for a 400 ha catchment area (industrial areas and eco park).
- 1993 Waste Management Study for Eminönü, Istanbul, Turkey
Private Investor
Project Manager
On-site stocktaking of the vehicle pool, the collecting zone and the waste disposal capacities; analysis of the types of waste (household, commercial, and market waste); identification of the collecting system, organisation of dustbins and containers, drawing up a collection schedule, organisation of a vehicle pool and staff, examination of alternative collecting systems, separation and transfer of the waste with the help of installations, staff and vehicles required; invitation to tender for the design of a waste disposal system based on the data collected; profitability calculation.
- 1989-92 AEW Plan GmbH (Consulting Engineers), Mainz, Germany
Manager of the Wiesbaden Office

Project Controlling and Management of all Planning Phases for the Sanitary Landfill of Wiesbaden, Germany
Access roads, drainage system, groundwater and gas collection systems and other infrastructure installations for the entire site; combined basis sealing (17 ha) with control drainage for a waste layer of 70 m in Section III; drainage and control tunnel underneath the future waste disposal site; operation and emergency plan for Section III of the site; safety schema for the tunnel; management of the preparation of an environmental impact study for the extension of the site; pre-planning and preparation of documents required for obtaining the official approval of plans for Section IV of the site.
- 1987-88 Rhine-Hunsrück District, Simmern Germany
Solution for the disposal of excavated material, rubble and road construction waste as well as green waste composting. Identification of 10 landfill sites; environmental impact assessment for 3 landfill sites.
- 1986-88 Eisenberg Sanitary Landfill, Donnersberg District, Germany
Planning and construction of
Access area with weighbridge, office and technical buildings, delivery point for small deliveries; surface sealing; gas collection system; infiltration water treatment plant.
- 1984-86 Meudt Landfill, Waste Disposal in the Westerwald District, Germany
Detailed study and execution of
Access area with weighbridge and office; mineral base sealing; gas collection; infiltration water treatment.
- 1985-92 Civil Engineering Authority of the City of Mainz
- 1992 Building ground Kisselberg: Separate sewerage system; construction of a flood retention basin.



- 1988-91 Planning of the development of the Gonsbach and Aubach rivers (rehabilitation of the natural habitat).
- 1988-89 Complete design of three flood retention basins (90,000m³) including environmental impact studies.
- 1985-87 Preparation of a storm run-off model for the Gonsbach river.
- 1988-89 Disposal Services of the City Mainz
- 1988-89 Planning and supervision of the construction of a power generation plant for producing electric energy from methane gas.
- 1986-87 Redesigning and extension of the existing gas collection system.
- 1981-92 AEW Plan GmbH (Consulting Engineers), Mainz, Germany
Project Manager
- 1982-85 Dyckerhoff Sanitary Landfill, Wiesbaden, Section I (approx. 30 ha)
Planning and supervision of reclamation, surface drainage and gas collection.
- 1982-85 Dyckerhoff Sanitary Landfill, Wiesbaden, Section II (approx. 25 ha)
Planning, supervision of works and on-site control;
preparation of landfill base, partially with mineral sealing; capturing of seepage water draining ditches with a depth of up to 10 m; surface drainage and road construction; pumping station for surface and seepage water; participation in the preparation of a geological expertise.
- 1983-89 Dyckerhoff Sanitary Landfill, Wiesbaden, Section III (approx. 17 ha)
Updating of the design;
Combined base sealing; surface drainage and road building; degasification; seepage water drainage through an accessible tunnel (700 m) below the site.
- 1985-89 Sanitary Landfill Mainzer Strasse, Wiesbaden
Research work on filling sections; test drilling on and around the site; expertise with rehabilitation proposals.
- 1985-89 Planning and Supervision of Gas Collection
Approx. 60 gas wells of up to 50 m in depth; approx. 20 km of pipes; 4 compressor stations with an overall capacity of 4 000 m³/h; high temperature incineration (4 000 m³/h).
- 1979-81 Landesamt für Wasserwirtschaft, Mainz, Germany
(Regional Water Resources Development Office)
Project Engineer
Research assignment on the impact of Rhine flooding on streams in Southern Palatinate: Construction of water-level monitoring stations; flow gauging; redesign of pumping stations; water-level calculations-
- 1975-79 Scheuermann & Martin Consulting Engineers, Eltville, Germany
Project Engineer
- Planning and supervision of the flood retention basin Kronberg



- Sewerage and rainwater discharge systems for the city of Lich
- Partial planning and supervision of the sewerage and rainwater discharge systems for the city of Kronberg
- Partial planning and supervision of sewerage and stormwater overflow for the community of Waldalgesheim
- Planning of a sewage pumping station for Waldalgesheim
- Supervision of the construction and settlement of project accounts for the wastewater treatment plant Oberer Rheingau
- Development, road construction, water supply and wastewater disposal for a new housing development in Lich
- rehabilitation scheme for the wastewater treatment plant of Lich
- Computer calculations for the water supply of the city of Bensheim.

Languages:

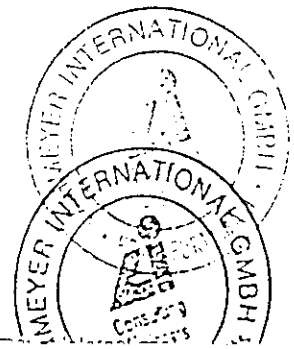
	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	excellent	excellent	excellent
French:	fair	fair	fair
Spanish:	poor	poor	poor

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.

Signature of Staff Member or
authorized official from the firm

Date: _____
Day/Month/Year



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CURRICULUM VITAE

Proposed Position: Operation Supervision

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: DIETRICH HUESER
Profession: Civil Engineer
Date of Birth: 09.02.1937
Nationality: German

Membership of Professional Societies: none

Detailed Tasks Assigned:

Operation supervision; Control of the technical parts of the operation of landfill, transfer stations, waste collection and street cleaning.

Supervision and control regarding the fulfillment of the technical standard and operation procedure by the local contractor.

Key Qualifications:

Civil and Environmental Engineer with extensive experience in project planning, project management and assessment of impacts to the environment. Expert in waste management and in contaminated sites investigation and remediation actions. Consultancy in planning, approving and operating waste treatment plants and sanitary landfills. Consultancy and assistance to the technical authorities in case of risks to the environment due to improper handling of waste and substances hazardous to water. Elaboration of "Master Plans" for the management of urban-, special- and hazardous-wastes including the investigation and classification of the different types and amounts of wastes. Member of the editorial working group "Contaminated Site Handbook" and of the national working group "Biogas from Landfills".

Education:

1956-1961 Studies in Civil Engineering; Graduation as Dipl. Ing. (equivalent to M.Sc.) in Civil Engineering at the University of Linz, Austria

1976 Special studies in Waste Management, University of Stuttgart, Germany



Since 1977 Special courses in environmental protection, planning and operating sanitary landfills, investigation, assessment and remediation of contaminated ground and abandoned waste sites

Employment Record:

1987 to date Short- and long-term missions as consulting engineer for the planning and supervising of waste management as well as institutional strengthening in the following countries:

Argentina	Ghana	Mexico
China	Guatemala	Peru
Colombia	Honduras	Sierra Leone
Costa Rica	Italy	Venezuela

1976-97 Landesanstalt für Umweltschutz Baden-Württemberg
(Environmental Protection Authority of Baden-Württemberg)
Department of Waste Management and Contaminated Sites Redevelopment
Control and consultation of the industry on waste management, inspection of public and private sanitary landfills. Leader of the MABOWEG (Mobile Waste-Soil-Water-Task-Group) of Baden-Württemberg.

Professional Experiences in Germany:

1996 Conception and Management of Research and Development Projects in the field of waste management, especially sanitary landfills, wastewater treatment and contaminated sites investigation and remediation

1980-84 Leader of the MABOWEG (Mobile Waste-Soil-Water-Task-Group) of the Land Baden-Württemberg with the following targets:

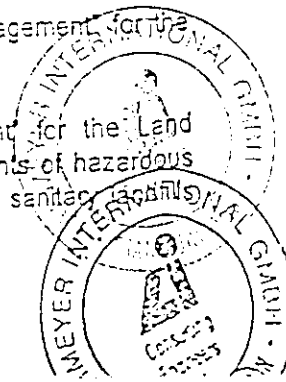
- Consulting and assistance of the technical authorities in case of risks to the environment due to improper handling of waste and substances hazardous to water.
- Advisory in planning, approving and operating sanitary landfills and waste treatment plants
- Supervision, control and assessment of the public and industry-owned landfill sites of Baden-Württemberg.
- Investigation and expert statements on dangers due to improperly managed sanitary landfills, wastewater treatment plants as well as abandoned contaminated waste sites

1990-91 Member of the editorial working group "Contaminated Site Handbook"

1980-90 Member of the national working group "Biogas from Landfills"

1986 Responsible for drawing up the Master Plan "Hospital Waste Management for the Land Baden-Württemberg"

1980-84 Collaboration on the "Masterplan Hazardous Waste Management for the Land Baden-Württemberg: Investigation of the different types and amounts of hazardous wastes, investigation and evaluation of sites for the construction of sanitary landfills and waste treatment plants.

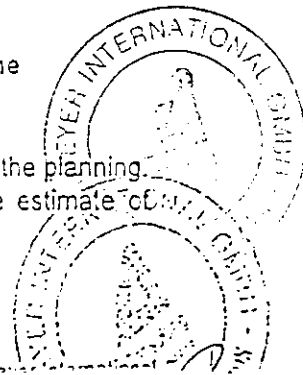


Professional International Experiences:

- 1996 Project "Waste Management in the Valley of Mexico", Mexico
GTZ
Senior Expert for Advance-control
Revision and evaluation of the progress of the project, analysis of the realization, management and the strategy of the project in comparison with the planning and the objectives.
- 1994-96 Project: "Sistema de Ordenamiento Ambiental de la Gran Area Metropolitana", Costa Rica
IDB, Interamerican Development Bank
Project Director
Supervision and coordination of the project "Institutional strengthening of the environmental administration in the Great Metropolitan Area". The project covered the following sectors: air pollution, water resources, waste management, soil protection, environmental legislation.
In the project participated 11 experts of different scientific disciplines and nationalities. The goal was to propose the government an effective structure for the administration and control of the environment and to elaborate adapted technical standards, guidelines and proposals.
- 1994 Project: "Hospital Waste Management Plan", Freetown, Sierra Leone
KfW, World Bank
Senior Expert
Investigation of the actual situation in Freetown, elaboration of general guidelines and a special proposal for the management of Hospital Wastes in the Greater Freetown Area including a description of the technical, personal, economical and legal requirements.
- 1993 Project: "Integrated Waste Management for the Town of Rosario", Argentine
GTZ
Senior Expert
Investigation of the actual practice in waste management in the town of Rosario as well as the general conditions on the legal, economical, institutional, technical and social fields. Performance of a workshop and elaboration of a proposal for a project to improve the actual waste handling and introduce new methods.
- 1992 Project: Feasibility Study "Hospital Waste Management", Beijing, China
KfW
Senior Expert
Investigation of the legal, institutional, technical, and economical basis for the planing, investigation and evaluation of the actual situation, preparation of a Master Plan including the estimate of investment- and operation-costs and the technical, personal and legal requirements.
- 1991 Project: "Hospital Waste Management Plan", Accra, Ghana
KfW
Senior Expert
Investigation of the actual situation in Accra, elaboration of general guidelines and a special proposal for the management of Hospital Wastes in the Metropolitan Area including a description of the technical, personal, economical and legal requirements.



- 1990 Project: Master Plan "Solid Waste Management Costa Rica", Costa Rica
 GTZ
 Project Manager
 Supervision of an interdisciplinary group of national professionals in the preparation of a Master Plan for the Waste Management in Costa Rica. The work included the investigation of basic data, the definition of the goals and the priorities as well as the technical, organizational, economical and legal proposals for the management and control of urban, industrial and agroindustrial wastes.
- 1990 Hospital Waste Management Plan, Guatemala City
 Investigation of the legal, institutional, technical, and economical basis for the planning, execution of pilot-projects, preparation of a Master Plan including the estimate of investment- and operation-costs
- 1990 Project: Security-Landfill for Hazardous Wastes (Search, investigation, evaluation and preplanning), Guatemala
 GTZ
 Project Manager
 Survey of basic information about geology, hidrogeology, topography, population, seismology, natural resources and other factors for the selection of appropriate sites. Assessment of the sites, technical investigation and preplanning of the landfill and its installations.
- 1989-90 Project: Master Plan "Hazardous Waste Management Guatemala", Guatemala
 GTZ
 Project Manager
 Survey of the existing legislation and investigation of the basic data for the planning: existing industry, types and amounts of generated waste, existing installations. Planning of a waste managing system including collection, transport, treatment and disposal of the waste. Listing of the institutional, technical, economical and legal requirements for the implantation of the plan.
- 1989 Project: Upgrading of an existing Sanitary Landfill, Guatemala
 GTZ
 Project Manager
 Consulting and assistance of the technical authorities of Guatemala City in improving the landfill operation to raise the sanitary standard and reduce the contamination of the environment
- 1989 Project: "Strengthening of CEPIS", Lima, Peru and Bogota, Colombia
 GTZ
 Senior Expert
 Preparation of guidelines and recommendations for the identification and classification of hazardous wastes on the basis of actual US and German regulations.
- 1988 Project: "Hospital Waste Management Plan", Euenos Aires, Argentine
 GTZ
 Project Manager
 Investigation of the legal, institutional, technical and economical basis for the planning. Execution of pilot-projects, preparation of a Master Plan including the estimate of investment and operation costs.



- 1970-76 Civil-Engineering Consultancy
Industry and infrastructure development projects in Germany, Italy, Nigeria, Botswana and Venezuela.
- 1965-70 Hochtief AG, Essen, Foreign-Department
Road construction in Paraguay; harbor construction in Iceland; short term deployments in Argentina and Algeria.
- 1961-65 Vering + Waechter GmbH, Karlsruhe, Germany
Elaboration of tenders, supervision of a soil laboratory; site manager of highway construction in Spain.

Languages:

	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
Spanish:	excellent	excellent	excellent
English:	excellent	excellent	excellent

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.

Signature of Staff Member or
authorized official from the firm

Date: _____
Day/Month/year



CURRICULUM VITAE

Proposed Position: Economist

Name of Firm: Lahmeyer International Consulting Engineers, Frankfurt/Main
Name of Staff: Richard WIENS
Profession: Economist / Institutional Support Specialist
Date of Birth: 1941
Nationality: German
Years with Firm: 8 years

Membership of Professional Organizations:

German Association of Agricultural Engineers of the Tropics

Detailed Tasks Assigned:

- Economic Analysis
 - Administrative, economic supervision for the operation phase
-

Key Qualifications:

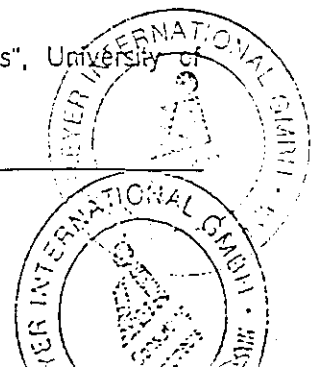
- Financial and institutional analysis of water supply, solid waste, wastewater and sanitary systems;
 - Economic and financial project evaluation;
 - Rural and regional development planning;
 - Institutional aspects of project implementation
 - Project planning and management, including agro-industries;
 - Agricultural support services (cooperatives, credit, marketing, extension services and input supply system).
-

Education:

09/66 - 08/69 B. Sc. Tropical Agriculture, University of Kassel (Witzenhausen), FRG
09/76 - 08/79 M. Sc. Agricultural Economy, University of Göttingen, FRG

Professional Training:

1979 Training course in team management, University of Kassel
1981 Course on "Methodical Aspects on Cost-Benefit Analysis", University of
Darmstadt, FRG
1984 Training course in Logical Framework Planning; GTZ



Relevant Experience:

Since 1989 LAHMEYER INTERNATIONAL GMBH,
Consulting Engineers, Frankfurt/Main, FRG
Senior economist, agricultural economist, institutional specialist, team leader.

1997 Economist
DENIZLI, SOLID WASTE MAGEMENT PLAN,
Turkey,
Funded by the KfW

Feasibility Study. Within a multidisciplinary team responsible for the economic analysis of the proposed solid waste management system for the city of Denizli.

1997 Municipal Engineer
SULAWESI URBAN DEVELOPMENT PROJECT II,
START-UP,
Indonesia
Funded by the World Bank

Institutional support to final preparatory phase prior to project implementation. Responsibility towards dissemination of agreements reached during negotiations between the Bank and GCI. Emphasis on operation and maintenance, tariff adjustments, monitoring and evaluation activities.

1995/97 Macro-Economist, Agro-Economist
COMPARTMENTALIZATION PILOT PROJECT,
BANGLADESH
Funded by KfW and Dutch Bilateral Aid

Setting up of a Monitoring & Evaluation programme and determination of relevant indicators to measure project impact in forthcoming evaluation of costs and benefits of improved water management by means of compartmentalization both on national and private level.

1995 Agro-Economist
ENVIRONMENT DUE DILIGENCE, CROATIA
Funded by EBRD, London

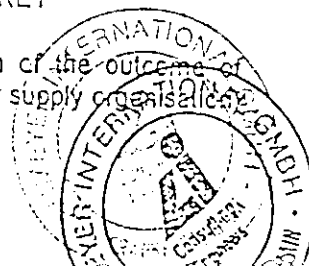
Collection and assessment of information related to environmental issues prior to envisaged transactions of the Agro Obrtnicka Banka DD, Zagreb and the Dalmatinska Banka DD, Zadar. The mission included training of the bank's managerial staff by means of a workshop.

1995 Agro-Economist
ENVIRONMENT DUE DILIGENCE, CHISINAU, MOLDOVA
Funded by EBRD, London

Collection and assessment of information related to environmental issues prior to envisaged transactions of the Moldova Agro-Industrial Bank (MOAI) in the field of agro-industries and food processing. Corresponding information of the bank's managerial staff by means of a workshop.

1995 Economist
WATER SUPPLY FEASIBILITY STUDY, ADANA, TURKEY
Funded by KfW

Financial analysis of the proposed new water supply system and evaluation of the outcome of combined water supply and sanitation services on ASKI's (local municipal water supply organization) financial viability.



1995, 1996 Municipal Finance Specialist
SULAWESI URBAN DEVELOPMENT PROJECT II,
Sulawesi, Indonesia
Funded by the World Bank

Economist within a multidisciplinary team, responsible for economic evaluation of urban investment programs in 40 towns on Sulawesi with emphasis on water supply, sanitation, solid waste, drainage and bus terminals.

1995 Expert for rural marketing and credit
OMVG - INTEGRATED RURAL DEVELOPMENT
PROJECT, SENEGAL, GUINEA AND GUINEA-BISSAU
Funded by the African Development Bank

Within a multidisciplinary team responsible for aspects on rural marketing and credit based on a comparison of the present situation with a projected development.

1995 Monitoring and Evaluation Expert
FORDWAH EASTERN SADIQIA (SOUTH) PROJECT, PAKISTAN
Funded by World Bank

Undertakes regular inputs as M & E expert to determine impact of various drainage measures. Specialist input to determine workability of farmer-maintained pump systems for re-use of water collected in interceptor drains.

1994 Economist, Institutional Expert
SANEAMIENTO DEL RIO TUY, VENEZUELA
Funded by GTZ

Advisor to the executing agency as to the reformation of the use of water resources. Analysis of relevant water user groups (agriculture, municipal, domestic, industry) and proposals as to their equitable participation in the recovery of mobilisation cost (investment and recurrent costs) with emphasis on drafting an appropriate tariff structure.

1994 Economist, Institutional Expert
WATER AND WASTEWATER STUDY, TYR, LEBANON
Funded by World Bank

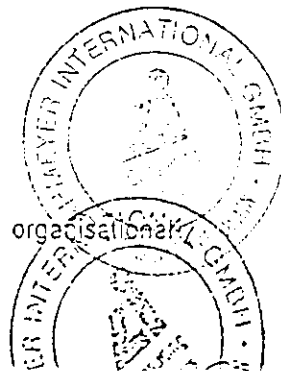
Financial advisor to local executing agency with regard to the preparation of the corresponding financial analysis and special attention on a revised tariff structure.

1994 Financial Analyst
BENGKULU WATER SUPPLY AND SANITATION PROJECT,
INDONESIA
Funded by KfW

Financial analysis of combined utilities of Bengkulu City comprising water supply, wastewater disposal, solid waste management and drainage.

1994 Economist, Institutional Expert
ADANA WASTE WATER TREATMENT PLANT, TURKEY
Funded by KfW

Financial analysis, recommendation for an adequate tariff structure and general organisational improvements on institutional level.



1993 - 1994 Economist, Group 3 Leader (institutional & Economics)
DANUBE RIVER BASIN ENVIRONMENT PROGRAMME
HUNGARY, RUMANIA, TZECH REPUBLIC, SLOVAC REPUBLIC
Funded by World Bank

Assessment of the overall economic background of participating countries; evaluation of the financial, economic and institutional framework of involved industries and communities with regard to environment-friendly adjustment programmes.

1993 Economist, Institutional Expert
PADANG WASTE WATER PROJECT, INDONESIA

Financial analysis, proposals towards the introduction of a tariff structure and recommendations as to the institutional organisation of a newly to be established urban waste water disposal system.

1993 Economist
BIRD SANCTUARY DJOUDJ, ST. LOUIS, SENEGAL
Funded by KfW

Overall evaluation of the present situation of the National Park and recommendations towards an enlarged protective zone around the reserve with additional income possibilities for the rural population surrounding the park.

1993 Agro-Economist
NAGA HAMMADI BARRAGE DEVELOPMENT,
NAGA HAMMADI, EGYPT
Funded by World Bank

Assessment of costs and benefits of changing land use patterns due to possibly changing water levels in the Nile because of different development options for the barrage.

1993 Economist
FLOOD ACTION PLAN 20
COMPARTMENTALIZATION PILOT PROJECT, SIRAJGANJ/
BANGLADESH
Funded by Dutch Government and KfW

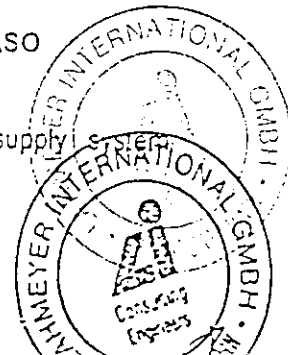
Cost-benefit analysis of FAP 20 related to flood protection and improved water management by means of compartmentalization.

1992 Economist
EMISSAIRE DELTA, SENEGAL
Funded by KfW

Cost-benefit analysis of improved water management by means of an improved drainage system including a major drainage canal in the coastal region of St.-Louis, Senegal.

1992 Economist
OUAGADOUGOU WATER SUPPLY PROJECT, BURKINA FASO
Funded by KfW

Detailed sensitivity analysis of the planned extension of the existing water supply system (complementary to the financial analysis for the same project).



1991 92 Team Leader Agro-economist
JEBEL MARRA RURAL DEVELOPMENT PROJECT,
SOUTH DARFUR, SUDAN
Funded by EEC

End-term evaluation. Team management with overall responsibility in co-ordinating and reporting; special tasks referred to institutional, organisational, financial and economic aspects.

1991 Economist
FLOOD ACTION PLAN 20
COMPARTMENTALIZATION PILOT PROJECT,
TANGAIL, BANGLADESH
Funded by Dutch Government and KfW

Economic assessment of improved water management by compartmentalization at regional level with a view to examining the possible impact at national level. The first phase dealt with the establishment of basic information by means of a rapid appraisal study.

1991 Economist,
KIGALI WATER SUPPLY, RWANDA
Funded by World Bank

Economic analysis of the planned waste water sanitation project in Kigali. Priority has been given to institutional aspects with emphasis on the determination of an adequate billing system based on economic activities of participants.

1991 Economist/Institutional Expert
PADANG WATER SUPPLY PROJECT, INDONESIA
Funded by KfW

Financial analysis with emphasis on the assessment of the financial impact of the proposed actions to extend the existing water supply system, including recommendations as to the organisation and management of the extended facilities.

1991 Economist
OUAGADOUGOU WATER SUPPLY PROJECT,
BURKINA FASO
Funded by KfW

Financial analysis related to the rehabilitation and extension of the existing water supply system of Ouagadougou with emphasis on the determination of the water production costs in order to allow an adequate future water pricing system with regard to optimal cost recovery.

1990 Economist
EXPANSION OF IRRIGATED AREAS
SENNAR SUGAR COMPANY, SUDAN
Funded by IDA

Short-term appraisal mission within a multidisciplinary team to evaluate the possible financial and economic impact of the planned extension of the sugar cane area under irrigation.



1990

Marketing Consultant
RURAL DEVELOPMENT PROGRAMME HAUTE-GUINEE, GUINEA
Funded by EDF

- Determination of agricultural products in quantity and quality available for marketing.
- Analysis of current marketing activities and procedures including assessment of price policies.
- Recommendations towards future production of agricultural goods oriented on local, national and international demand patterns.

1990

Team Leader/Economist and Institutional Expert
REHABILITATION OF UGANDA SEEDS INDUSTRY
End-term evaluation
Funded by EEC

Evaluation of seeds industry in general with emphasis on seed multiplication farms. Recommendations towards economically viable production, general organisation and management and national seed policies and strategies.

1989

Institutional Expert
MIGRANT PESTS CONTROL
SADCC-COUNTRIES ZIMBABWE
German Technical Co-operation (GTZ)

Provision of short-term consultancy to the executing agency, Food Security Technical and Administrative Unit (FSTAU), on behalf of SADCC directed towards the setting-up of a M & E system with regard to the trans-regional project: "Migrant Pests Control".

1979 - 1989

AGROPROGRESS KIENBAUM INTERNATIONAL GMBH, Bonn, F.R.G.
Senior agricultural economist, team leader

1989

Agro-economist
BAHUNDANDA IRRIGATION PROJECT, NEPAL
Funded by EEC

Short-term support mission to appraise the corresponding small-scale irrigation project. Economic analysis on farm and on national level.

1988 - 1989

Team Leader/Economist
MOBILE PALM OIL MILLS, MANO RIVER UNION (MRU)
SIERRA LEONE, LIBERIA, GUINEA
Funded by AfrDB

Pre-feasibility study on the conception of mainly mobile mini palm oil mills adapted to the economic and socio-economic conditions prevailing in the palm-oil production regions of the three MRU member states.

1988

Agro-economist
AGRICULTURAL SECTOR IMPORT PROGRAMME, TOGO
Funded by EEC

Appraisal of national production and identification of appropriate inputs in quality and quantity (mechanisation, fertilisers and agro-chemicals). Assessment of impact of selected inputs on national as well as on farm level.



1988 Team Leader / Agro-economist
SEED MULTIPLICATION CENTRE, MADAGASCAR
Funded by EEC

Evaluation of the Seed Multiplication Centre. Assessment of existing irrigation facilities and appraisal of ongoing production activities. Recommendation towards organisation and management with emphasis on financial viability of the unit.

1988 Team Leader / Agro-economist
AGRICULTURAL DEVELOPMENT BATEKE PLATEAU, ZAIRE
German Technical Co-operation (GTZ)

Responsibilities:

- assessment and analysis of agricultural development potential;
- economic evaluation and planning of forthcoming development strategies;
- evaluation of institutional infrastructure and recommendations to achieve optimal support to farming community.

1987 - 1988 Agro-economist
AGRICULTURAL DEVELOPMENT KOLENTE, GUINEA
Funded by AfrDB

Responsibilities within feasibility study team:

- assessment of the economic benefits of the project;
- macro-economic analysis;
- agro-industrial aspects and marketing

1987 Agro-economist / Institutional Expert
NATIONAL COFFEE DEVELOPMENT AGENCY (ADECAF)
Central African Republic
Funded by EEC

Supporting mission to ADECAF:

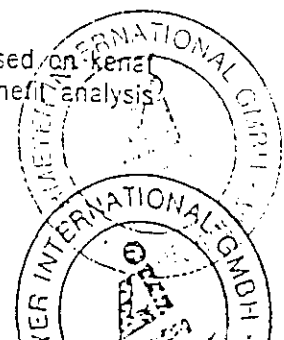
- reorientate support strategies of relevant back-up services (extension, input supply system);
- analysis of farming system with the aim to recommend possible amendments;
- assessment of agricultural potential and delimitation of most suitable coffee growing area.

1986 Team Leader / Economist
NATIONAL COTTON PRODUCTION AND PROCESSING, CAMEROON
Funded by the World Bank

Responsible for the identification of shortcomings in the sector of agricultural production and determination of improvements with emphasis on institutional support (input supply system, extension service, agricultural credit).

1986 Team Leader / Economist
KENAF PRODUCTION PROJECT, ZAMBIA
German Technical Co-operation (GTZ)

Feasibility study to evaluate possibilities of local production of bags, ropes, etc. based on kenaf including rehabilitation of existing processing unit. Cash flow, financial and cost-benefit analysis separately for factory, kenaf production and combined project components.



1985 Agro-economist
MASTER PLAN SHEBELLE RIVER, SOMALIA
Funded by KfW

Responsibilities within multidisciplinary team:

- crop production strategies towards optimal use of limited water resources;
- evaluation of export potential for agricultural produce and import substitution potential;
- impact on national marketing and price policies;
- regional and national macro-economic impact of adapted irrigation strategies.

1985 Agro-economist
FOODGRAIN STORAGE AND PROCESSING, PAKISTAN
Funded by the World Bank

Responsibilities within multidisciplinary study team:

- analysis of production conditions and potentials and the determining factors;
- impact of agricultural and foodgrain policies;
- projections of production, supply and demand, exports and imports;
- on-farm and village level storage (together with others).

1985 Team Leader / Economist
CASSAVA BASED ANIMAL FEEDS PROJECT, KENYA
Funded by KfW

Feasibility study with emphasis on:

- assessment of demand and supply situation of animal feeds;
- assessment of possible market outlets and farm gate prices;
- analysis of the overall economic background;
- elaboration of proposals for a ready financeable project.

1984 Agro-economist
PROMOTION OF TRAINING PROGRAMMES, CAMEROON
German Technical Co-operation (GTZ)

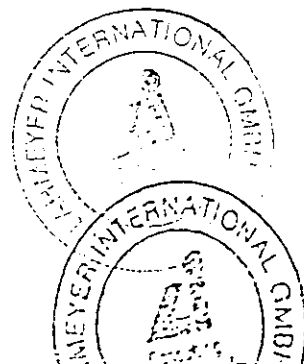
Responsibility within multidisciplinary study team:

- estimation of the existing demand in the field of training and advanced training programmes;
- estimation of possibilities to cover the identified demand;
- planning of future activities orientated on the logical framework method in collaboration with representatives of the concerned counterpart organisation.

1984 Agro-economist
PALM OIL PRODUCTION AND PROCESSING, BURUNDI
Funded by AfrDB

Responsibilities within multidisciplinary team conducting the feasibility study:

- Assessment of production potential, demand and supply requirements, economic environment of production;
- Cash flow, cost-benefit and financial analysis of production and processing;
- Evaluation of macro-economic impact.



1983 Team Leader, Economist
ADAPTED CULTIV. PRACTICES BY HELP OF ANIMAL POWER,
CAMEROON
German Technical Co-operation (GTZ)

Mid-term evaluation. Assessment of long-term impact of project activities on farm and macro-economic level. Synthesis of completed programme and conclusions based thereon for subsequent years.

1983 Agro-economist
CENTRE D'ANIMATION RURALE, MALI
German Technical Co-operation (GTZ)

Evaluation of the ongoing project. Examination of current agricultural small-holder farming systems using animal traction and the effectiveness of farm credit provided by the project. Preparation of detailed advice with a view to improve agricultural profitability in combination with an adapted credit system.

1981 Agro-economist
AGRICULTURAL DEVELOPMENT PROGRAMME,
BANGLADESH
German Technical Co-operation (GTZ)

Evaluation of an ongoing agricultural development programme in respect to economic stability of irrigation groups, profitability of adapted cultivation methods and preparation of proposals for suitable crop diversification and cultivation methods.

Determination of agricultural input and credit requirements for small-holder and landless farmers. Determination of possibilities for distribution of credit and agricultural inputs.

1981 Economist
AGRICULTURAL PRODUCTION UNIT, GUINEA
Ministry of Agriculture

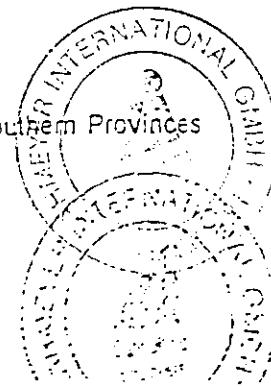
Feasibility Study related to the planning of an agricultural production unit (5000 ha) on behalf of the Ministry of Agriculture. Main responsibilities within a multidisciplinary team concerned: Cost-benefit analysis of the planned units including irrigation and agro-industries (rice mills), overall macro-economic effects, especially in the commercial sector (marketing and price-policies).

1981 Agro-economist
BASIC AGRICULTURAL SERVICE PROGRAMME, (BASP),
LESOTHO
Funded by EEC

Internal evaluation of EEC financed Block V and VI, Mofales Hoek and Quthing, including the organisational set-up of marketing institutions and effectiveness of newly introduced price-policy.

1980 Consultant
COTTON DEVELOPMENT PROJECT, ZAMBIA
Funded by EEC

Mid-term evaluation of the regional cotton development project in Central and Southern Provinces with emphasis on marketing structures and prevailing price policies.



1980 Agro-economist
REGIONAL AGRICULTURAL DEVELOPMENT, GUINEA
Ministry of Agriculture

Agro-economic basic research and evaluation in respect to regional agricultural and agro-industrial development, on behalf of the Ministry of Agriculture.

1980 Team Leader/Economist
INTRODUCTION OF FARM MECHANISATION, BENIN
German Technical Co-operation (GTZ)

Study on possibilities for introduction of different forms of agricultural mechanisation (draught animals, single axle tractors, tractors) within the regional development programme CARDER ATLANTIQUE. Responsible for overall economic aspects.

1973 - 1976 AGRAR-UND HYDROTECHNIK, Essen, F.R.G.
Project Manager
THE VILLAGEOIS, CYANGUGU, RWANDA
Funded by EEC

Introduction and promotion of tea in small-holder production units, foundation and management of a production and service co-operative.

1970 - 1973 PHARMAKINA, Zaire
Section Chief/Group Manager
PHARMAKINA PLANTATION BUKAVU, ZAIRE

- Section Chief, responsible for a 1400 ha plantation with chincona tea (partly under irrigation).
- medicinal plants and forestry (1970-71).
- Group Manager, responsible for all tea plantations including administration and marketing (1972-73).

1962 - 1965 Assistant Farm Manager, FRG

Languages:

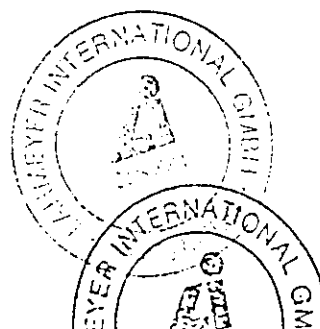
	<u>speaking</u>	<u>reading</u>	<u>writing</u>
German:	excellent	excellent	excellent
English:	excellent	excellent	excellent
French:	excellent	excellent	good
Spanish:	basic	good	poor

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.

Signature of Staff Member or
authorized official from the firm

Date: _____
Day/Month/Year



[Handwritten signature]

Name: Michel Khayata
Profession: Civil Engineer
Date of Birth: 1959
Nationality: Lebanese & French
Languages: Arabic, English & French

Education

- CNAM Paris, France - D.P.S., Specialized Professional Diploma in Finance in 1993.
- CHEC - CHEBAP Paris, France, - Reinforced Concrete and Prestressed Concrete Section in 1982.
- ESIB, Lebanon - Civil Engineering Diploma, Public Works Section in 1981.

Experience Record

1993 to Date With Dar Al Handassah Nazih Taleb & Partners (Lebanon)

- Project Manager

1995 -1997 Assistance to Client SNCF (Paris, France).

- Feasibility of Construction operations on SNCF train stations.
- Studies and Work coordinator of the primary civil engineering of the SNCF train station 'St Lazare Condorcet'. (Paris, France)

1990 -1995 COYNE & BELLIER Consulting Engineers (Paris, France).

- Chief Consulting Engineer. Liaison to executive structural planning office for Est-Ouest-Liaison-Express (EOLE). Underground construction of SNCF train stations "Nord-Est" and "St. Lazare Condorcet". (Paris, France)
- Chief Consulting Engineer. Detailed pre-project designs and control of execution studies for TGV train station. (Lille, France)

1982 -1989 LIBANCONSULT Consulting Engineers (Lebanon).

- Preliminary Studies Coordinator: Design irrigation system for mountain lakes in Chouf and North Lebanon. (Semquniye and Aitamoun Lakes Projects) for Food and Agriculture Organization (FAO).
- Executive Project Engineer/Director of Works: Technical hydraulic, mechanical design, studies of water treatment facility (capacity 800 cu.m/day) and two public swimming pools. (Omayad Complex Center, Damascus, Syria; with Saudi OGER)
- Project Engineer: Preliminary and feasibility studies, site supervision of Chabrouh Earthfill Dam investigation (volume 8,000,000 cu.m) and water treatment plant (capacity 60,000 cu.m/day) as well as research for water resources in Mount Lebanon region and estimation of future population demands for water distribution. (Oued Chabrouh Dam, Lebanon; in collaboration with Coyne et Bellier, Paris)
- Project Engineer: River water intake and feeder design, technical studies, execution drawings. (Area, Lebanon)
- Chief Project Engineer: Technical hydraulic and mechanical studies and detailed execution design for public and private swimming pools. (Aquamarina resort, Lebanon; Al Nakhil, Saudi Arabia)
- Project Engineer: Steel bridge constructions including technical studies of retaining walls, abutments and footings. (Beirut, Lebanon)
- Chief Project Engineer: Preliminary studies, detailed design and execution drawings, specifications and tender documents, and site supervision of 250-site fishing harbor. (Abdeh harbor, Lebanon)
- Project Engineer: All studies and design for 350-site fishing and leisure harbor. (Lebanon)
- Project Engineer: Technical studies of various public buildings over a surface area superior to 25,000 sq.m.

1983 -1988 UNIVERSITE LIBANAISE Faculty of Engineers (Lebanon).

- Instructor of courses in Port, Harbor and Maritime works.



Name: Nehmetallah Moutzer Date of Birth: 1964
 Position: Civil Engineer Nationality: Lebanese & Canadian
 Years with Firm: 5
 Place of Work: Dar Al Handasah
 Proposed Position: Deputy Manager

Education

- Diplôme d'Ingénieur Civil - Travaux Publics, from Lebanese University - Faculty of Engineering, Roumieh, Lebanon (1986)
- M. Eng. in Civil Engineering, division structures from Ecole Polytechnique of Montréal (Quebec), Canada (1993)

Qualifications

Over 10 years of experience in water and waste water projects in designing and supervising. Experienced in the management of such projects both in design and at the execution level. Also, assuming the link with the client.

Languages:

	Reading	Speaking	Writing
English	4	4	4
Arabic	5	5	5
French	5	5	5

Experience Record

1993 to Date With Dar al Handasah Nazih Taleb & Partners Consulting Engineers - Beirut, Lebanon as a Civil & Hydraulic Engineer.

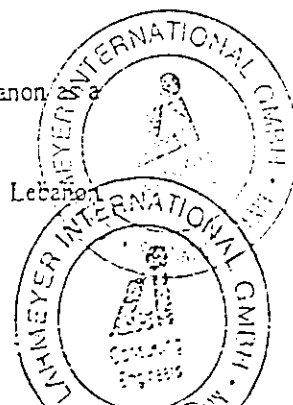
Project Manager of the following projects:

- Potable water and waste water networks in Baalbeck & Harmel
Preparation of detailed studies and final designs of the required rehabilitation works of the potable water and waste water networks including preparation of details of the proposed construction program and packaging, and cost estimation.
- Potable water network in Danniye
Preparation of detailed studies and final designs of the required rehabilitation works of the Danniye potable water network including preparation of details of the proposed construction program and packaging, and cost estimation. Managing the supervision of construction.
- Irrigation network in Danniye
Short study for assessment of rehabilitation needs of the irrigation system.
- Waste water network in Danniye
Establishing of a preliminary plan.
- Flood regulation in Ras Baalbeck Valley

1989 - 1991 With Bakiche Touristic Company - Debs and Co., Jounieh, Lebanon as a Civil Engineer.

1986 - 1991 With Dar Al Handasah Nazih Taleb Consulting Engineers, Beirut, Lebanon as a Civil Engineer.

Participation in the following projects:



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Name: Roland Mitri Date of Birth: 1961
 Position: Architect Nationality: Lebanese & French
 Years with Firm: 3
 Place of Work: Dar Al Handasah
 Proposed position: Architect (buildings)

Education:

- Architect graduated with honors, National Institute of Fine Arts, Beirut, 1985. Thesis : 150 unit housing village.

Qualifications:

Over 10 years experience in design and rehabilitation of building projects. Experienced in many architectural rendering computer programs. Presently part of the architectural team for the Lebanese University Campus Execution Design mega project.

Languages:

	Reading	Speaking	Writing
English	5	5	5
Arabic	5	5	5
French	5	5	5

Experience:

1996 to date With Dar Al Handasah Nazih Taleb & Partners. Worked on the following projects :

- **LEBANESE UNIVERSITY CAMPUS:** Execution Design Works including architecture, structure and infrastructure.
 A multi discipline project with all infrastructure services: roads, car parking, water supply, wastewater, irrigation, landscaping, fire fighting and lighting for 23 buildings and faculties in addition to a sport complex and a conference center. Contract works more than 200.000.000 US\$. Working as an architect on specific buildings in charge of detailing and coordination with all trades.
- Urban planning for the Lakkouk region
- Execution drawings for a 14 story building, Ashrafieh.

1993 - 1995

On his own. The major achievements are :

- Architectural consultant for the "Banque du Liban" :
 - Preparation of construction documents and specifications for tender,
 - Expertise and supervision of work on sites : Beirut headquarters, Sidon, Tripoli & Zahle,
- Schematic design, design development and execution drawings for ABILAMAA building, Brumana,
- Design of the main entrance for ZOGHZOGHI building, Sursock - Beirut,
- Landscape design for ZOGHZOGHI residence, Hammana,
- Schematic design, design development for Meatel headquarters, Hazmieh,
- Design of new entries to the Sohat building, Hazmieh,
- Design of a 3D color CAD model sales brochure for the "Villa T. GHARGHOURE", Rabieh,
- Construction documents for the "Villa SOBRAWI", Tyre (3000 m²) - joint venture with MEDMAC co.



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1989 - 1992 With T. LEFER Architect - Paris as project manager and team leader : schematic design, design development, execution drawings, construction documents and specifications, cost estimation and value engineering. The major achievements are :

- Restoration and rehabilitation of a 16th century building,
- House grouping and collective housing designs,
- Individual housing designs and building extensions.
- International competition "LA FORET DES PINS", Beirut, co-sponsored by LAURIF - Paris, and CDR - Beirut : selectioned team for the intentional notice.

1986 - 1989 With R. El Khazen landscape workshop as Assistant Architect : execution drawings mastery and design contribution. The major achievements are :

- MORITRA : Private gardens for the Lebanese Republic President,
- LA RESERVE : Cascading roof gardens and terraces, collective garden area for a housing complex, Brumana.
- Common landscaping project, Fakra, for M.S GHARGHOUR ASHKAR - ABI YAGHI, MANSOUR.

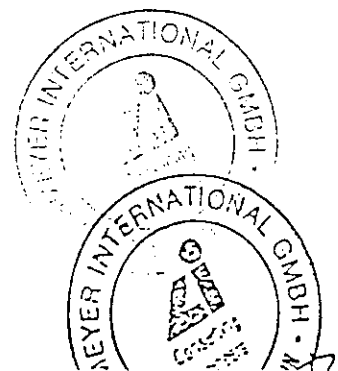
1985 - 1986 As Free Lance Architect. The design and execution are :

- Garden terrace for an apartment, Naccache.
- Preliminary design for the extension of a Lebanese traditional house, Ain Aar.
- Design and execution of a dental clinic, Dhayé

Additional Knowledge

Renewable energies :

- Bioclimatic Architecture : Solar energy, both passive and active.
- Solar town-planning



Name: Charles Antoine Hslou Date of Birth: 1963
 Position: Structural Engineer Nationality: Lebanese
 Years with Firm: 1
 Place of Work: Dar Al Handasah
 Proposed position: Civil Engineer (buildings)

Education:

- B.E. in Civil Engineering from BUC (Lebanese American University) in 1987.
- M.E. in Civil Engineering (structures) from Georgia Institute of Technology, USA, 1995.

Qualifications:

Almost 10 years of experience in design and supervision of buildings projects. Presently working as a design structural engineer on the Lebanese University Campus mega project on the Execution Design phase.

Languages:

	Reading	Speaking	Writing
English	5	5	5
Arabic	5	5	5
French	4	4	4

Experience Record:

1997 to date With Dar Al Handasah Nazih Taleb & Partners as part of the structural design team for the Lebanese University Campus mega project Execution Design project.

1996 - 1997 With Subkar Engineering Group, Lebanon, as project engineer. Design a high rise steel plat forms to support heavy water Tanks in Choueifat districts, buildings in Middle Beirut area, generating shop drawings & B.O.Q.

1995 - 1996 With SES International snc system - Lebanon, as project engineer participated in design & supervision of big commercial building, managing, planning & scheduling the site construction.

1994 - 1995 His own practice, projects consisted foundation and superstructure design of reinforced concrete facilities and execution drawings.

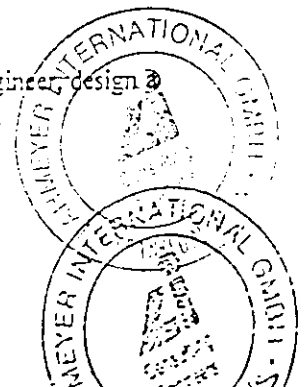
1991 With Petro - Marine Engineering, Inc. New Orleans, Louisiana - USA. As design engineer of offshore drilling & production platforms, structural design and analysis and dynamic analysis of structures to be transported and installed in the Gulf of Mexico.

1991 - 1994 With URS Consultants, Inc., New Orleans, Louisiana - USA. As design Structural Engineer, worked on structural analysis and design of massive concrete structures, masonry structures, wood and timber structure, analysis of integral structure/soil system. Also design of storm drainage pump station consisting 84" diam. v rtical pumps, inverted T-wall floodwall, I-wall. Highway design lift stations, school design, manholes, trenches, and other drainage systems.

1994 With B.A.U.E.N., Beirut - Lebanon, worked as Design Structural Engineer design & multistory residential buildings, prepare project documents, specifications and drawings.

Memberships

- Member of the Order of Engineers and Architects, Lebanon
- Member of American Concrete Institute (ACI)



Name: Khalil Haddad Date of Birth: 1968
 Position: Electrical Engineer Nationality: Lebanese
 Years with Firm: 6
 Place of Work: Dar Al Handasah
 Proposed position: Electrical Engineer

Education

- Diploma in Electrical Engineering - Power Engineering option (Electromechanical) from Ecole Supérieure d'Ingénieurs de Beyrouth (ESI) in 1991.

Qualifications:

Over 5 years experience in the electrical design of buildings, treatment plants, pumping stations. Well versed in new technologies and computer programs. Also develops in house software for customized tasks.

Languages:

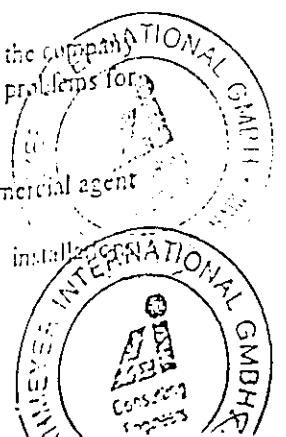
	Reading	Speaking	Writing
English	5	5	5
Arabic	5	5	5
French	5	5	5
German	3	3	3

Experience Record

1993 to Date With Dar Al Handasah N. Taleb As electrical engineer.

- **LEBANESE UNIVERSITY CAMPUS:** Execution Design Works including architecture, structure and infrastructure.
 A multi discipline project with all infrastructure services, roads, car parking, water supply, wastewater, irrigation, landscaping, fire fighting and lighting for 23 buildings and facilities in addition to a sport complex and a conference center. Contract works more than 200,000,000 US\$. Working as an Electrical Engineer in charge of coordination with all other trades.
- Involved in the design of electrical installations in Tripoli Hospital (220 rooms). Design included power, lighting and low voltage installations, with computer monitoring, fire detection, etc.
- Attended an advanced public lighting seminar held during November 1993 in Liège / Belgium at Schréder premises.
- Also involved in the rehabilitation and upgrading of Beirut city services project; work involved the rehabilitation of electrical installations in fire stations (4), infirmaries (5), public gardens (3), metallic bridges lighting (4) and tunnel lighting (new design).
- Also involved in the rehabilitation of Ab Ed Delbeh water treatment plants and pumping stations; work included the design of power installations and control for 2 clarifiers, 3 rapid type filters and pumps, with a daily treating and pumping capacity of 48000 m³.
- Also involved in the design of electrical installations for new pumping stations in Yammouneh and Dannyeh projects (including submersible pumps)
- Recently involved in Baalbeck-Syrian border Highway project (60 km); work involving traffic signalisation and CAD development for geometrical and hydraulic design.
- Responsibilities also include overseeing the operation of all computer workstations in the company and developing custom made computer softwares designed to solve specific technical problems for projects and to enhance the effectiveness of computer use in general.

1991 - 1992 With Comptoir d'Electricité Générale - Liban as technico-commercial agent and executive manager assistant, involved in trading affairs, import, export, etc. Work also included technical consultation in low voltage electrical switchgear and installation according to international standards.



Name: Walid Chchade Date of Birth: 1957
Position: Mechanical Engineer Nationality: Lebanese
Years with Firm: 16
Place of Work: Dar Al Handasah
Proposed Position: Mechanical Engineer

Education

- Master in Mechanical Engineering, University of Poitiers, France, 1980.
- Mechanical and Aerotechnical Engineering Diploma, from Ecole Nationale Supérieure de Mécanique et d'Aérotechnique - Poitiers, France, 1981.

Qualifications

Over 16 years of experience in design and supervision of electromechanical works for projects such as solid waste incineration plants, buildings, hospitals, water treatment and pumping stations.

Languages

	Reading	Speaking	Writing
English	4	4	4
Arabic	5	5	5
French	5	5	5

Experience Record

- 1982 To Date With DAR AL HANDASAH NAZIH TALEB & Partners as a mechanical engineer for design and supervision of the following projects:

Ain Ed Delbeh Water Supply, 1996-1997

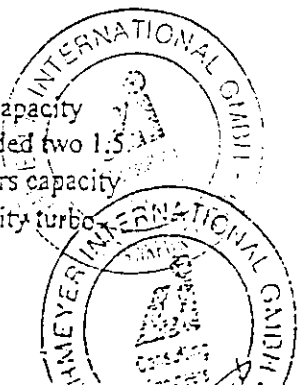
Resident Engineer in charge of supervision of construction of new water transmission pipeline for Ain Ed Delbeh and Daichounieh sources, Jambour tank and Hazmieh and Daichounieh pumping and chlorination plants.

Extension to Dbaye Water Treatment Plant, 1994-1996

Resident Engineer in charge of supervision of the civil and mechanical works. Works included clarification and decantation for 70,000 m³/day and rapid filtration for 270,000 m³/day.

Solid Waste incineration plant in South Beirut, 1992-1994

Resident Engineer in charge of supervision. The project consists of a 40 tons capacity weighting bridge, and a 2,000 M³ capacity waste collection tank. It also included two 1.5 M³ capacity rolling bridges, two 5 tons capacity ovens, two 9 tons/h at 23 bars capacity steam boiler, two 27 500 Nm³/h capacity electro-filter, and a 500 K.V.A. capacity turbo alternator.



Upgrading of Beirut City Services, 1992-1995

Supervising engineer in charge of the rehabilitation of fire fighting stations.

Jafet Library and Bliss Hall at the American University of Beirut, 1992-1993

Design and rehabilitation of the electro-mechanical work including lighting, power distribution, heating, air conditioning and sanitary layout

Tripoli Hospital, 1990-1992

Design of Mechanical Work for the hospital 300 beds.

Amchit Bitumen, 1988-1990

Complete design of the mechanical equipment of Amchit bitumen in a capacity of 8,000 M³ . . . including a complete system to transport and manipulate heat and deliver bitumen and a bitumen direct intake system from tankers.

Bared Dam, Tripoli, 1986-1988

Participated in the design and supervision of construction of pumping station and water main line from city.

Edma Dafne (Casino du Littoral), 1984-1986

Design and supervision of electro-mechanical, air conditioning and sanitary systems for Edma pumping stations and sewage line and its conveyance to Jounieh main sewage network.

1,600 Housing units at Eucalyptus, Algeria 1982-1984

Design of the electro-mechanical air conditioning and sanitary systems.

1981 - 1982 With BUTEC Engineering in Beirut and Iraq, as field engineer on the installation of the mechanical equipment for the Mosul sewing factory in Mosul - Iraq. The project included the installation of Two WANSON, 3450 Kg/h each, steam boilers, two CARRIER, 1 300 000 f g/h each, chillers, two AQUAFRILLAR, 1 620 000 kcal/h each, cooling towers, fifteen CLIMACIAT air handling units, a complete fire fighting system, a vacuum system with 6 machines, a compressed air system of 555 M³/h at 7 bars capacity, an Alsthom, 170 K.V.A. generator, a B.B.C. -C.E.M- 1250 K.V.A. transformer.



Name: Samir Taleb Date of Birth: 1967
 Position: Geotechnical Engineer Nationality: Lebanese
 Years with Firm: 5
 Place of Work: Dar Al Handasah
 Proposed position: Assistance Environmental Engineer

Education

- American University of Beirut, B.Eng., Civil Engineering, 1989
- Cornell University, M. Eng., Geotechnical & Environmental Engineering, 1990
- Harvard University, C.S.S., Business Administration & Management, 1993

Qualifications

Over 5 years experience in the design and management of Water, Geotechnical and Environmental projects.

Languages:

	Reading	Speaking	Writing
English	5	5	5
Arabic	5	5	5
French	5	5	5

Experience Record

1994 to Date With Dar Al Handasah Nazih Taleb & Partners, Beirut, Lebanon
 Worked in the design and management of several infrastructure projects such as water, irrigation and waste water projects. Worked on the Feasibility study and design of Biski Dam, a project in Joint Venture with ECI-A Division of Frederic R. Harris, Inc., a 74 m high embankment dam in Southern Lebanon with a storage capacity of 130 Mm³ (including the geotechnical and environmental aspects of the project).

1992 - 1994 With GELRW Gillespie & Assoc., Inc. U.S.A.
 Managed several projects in geotechnical and environmental engineering, and related construction monitoring and testing for quality control. Specialized in expert opinion and consulting in special geotechnical and environmental problems. Work included special site exploration, evaluation of failure and design of remediation, design of special foundations and new earth retention systems, and ground water control. Environmental work included assessment of environmental pollution for site acquisition, and containment and remediation. Responsibilities also included management of a team of engineers for supervision of geotechnical environmental construction including a NVLAP certified materials testing laboratory.

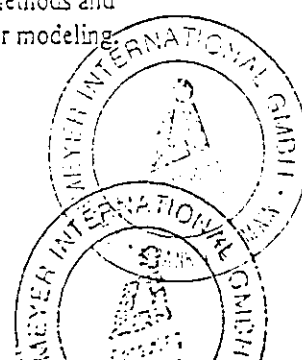
1990 - 1992 With GEI Consultants Inc., U.S.A.,
 Investigation, assessment, design, and analysis of various geotechnical and environmental projects. Project Engineer on the geotechnical investigation and design of Section D015A of the Central Artery Project in Boston, a 40m deep slurry wall tunnel in soft clays, underlying the existing steel bridges. Designed excavations and foundations, ground water control, and analyzed construction methods and problems. Supervised the sophisticated field exploration and used state of the art computer modeling.

Trainings and Certificates

- ASFE Liability Loss Prevention Program
- NVLAP Construction Materials Testing
- OSHA Hazardous Waste Operations

Registrations

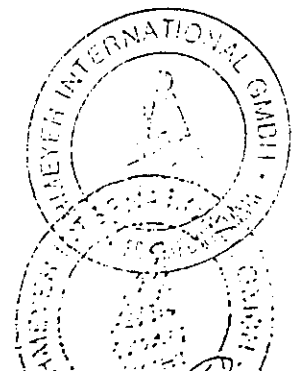
Signature



Lebanese Order of Engineers, Lebanon
Registered Professional Engineer, U.S.A.

Member of

ASCE, ISSMFE, NAGW, ASFE



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Name: Akram Younes Date of Birth: 1957
 Position: Civil Engineer Nationality: Lebanese
 Years with Firm: 5
 Place of Work: Dar Al Handasah
 Proposed Position: Engineer for Construction Supervision

Education:

B.E. in Civil Engineering in 1982, from the University of Damascus - Syria.

Qualifications:

Over 10 years experience in the supervision of construction of infrastructure and buildings projects.

Languages:

	Reading	Speaking	Writing
Arabic	5	5	5
French	3	3	3

Experience Record:

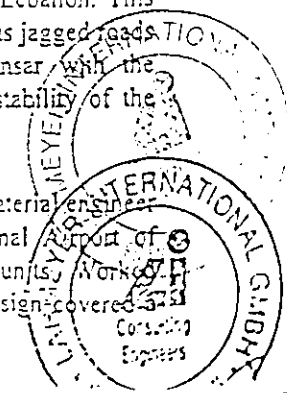
1993 to date With Dar Al Handasah Nazih Taleb & Partners , worked mainly as material engineer on Jouneih - Harissa, 6 km mountainous road including many retaining walls and bridges. Worked also on the upgrading of Beirut city services that included streets, sidewalks, gardens, asphaltting, sewers, water lines, rehabilitation of bridges, clinics, firefighting centers, etc... Is working now on the Bekaa Roads Rehabilitation Project with the MPW (Ministry of Public Works).

1992-1993 Managed own consulting engineering company "Engineering construction company" in the area of building construction certification, engineering design and construction supervision. Also worked in joint venture with the company LACECO on the project consisting of the damage assessment of governmental buildings in the two counties Mount Lebanon and the South county for the Lebanese Council of Development and reconstruction.

1988-1992 With the Department of Transportation and Communication - Libya Head of the projects section in the city of Kafia, responsibilities included the engineering supervision of the construction of all work related to transportation in the city of Kafia and especially the roads and buildings projects. Also responsible for all the maintenance work and preparation of engineering designs and periodical technical reports related to the follow-up of execution and moreover the preparation of contractual agreements and project billings. Assisted in this task by a team of engineers, surveyors and administrators. The project construction was executed by the Greek based company "Aprotiki and Newdo", the Swedish company A.B.V. the Libyan company for General construction and several subcontractors specialized in city projects.

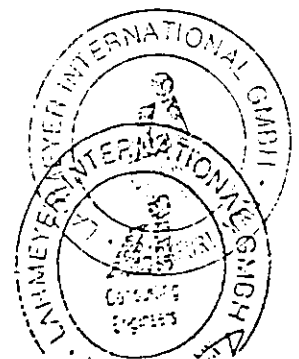
1985-1988 With Jabal Kasoun company of Syria, Material Engineer of the expansion and rehabilitation of the road connecting Jebza and Saïda street in South Lebanon. This project consisted of widening and rehabilitation of approximately 40 km of mountainous jagged roads and their paving with asphalt. Also assisted the company in their office in Ansar with the administrative tasks during the work interruption periods caused by the political instability of the region..

1984-1985 With the General Construction Company of Damascus, material engineer for the construction of a residential complex for the employees of the international Airport of Damascus. The project consisted of the construction of approximately 2000 residential units on the first phase of this project which covered the construction of 529 units. The design covered



large group of buildings that represented 3 different architectural and structural designs in which the average height was 2 stories. The construction included solar energy based system to power the heating and air conditioning systems. Responsibilities covered the reinforced concrete work, the central concrete mix and the reinforcing metal work.

1982-1984 Site supervision as Material Engineer for the construction of residential buildings, permits for building construction or occupancy from governmental authorities. Engineering consultancy services.



Name: Pierre El Semaani Date of Birth: 1962
Position: Civil Engineer Nationality: Lebanese
Years with Firm: 4
Place of Work: Dar Al Handasah
Proposed position: Operation Supervision - Technical

Education

- M.E (M.Sc.A) in 1992, Ecole Polytechnique de Montreal.
- B.E in 1986, Lebanese University Faculty of Engineering.

Qualifications

Over 5 years experience in field work and supervision of field operations.

Languages

	Reading	Speaking	Writing
English	4	4	4
Arabic	5	5	5
French	5	5	5

Experience record

1995 To Date *Dar Al Handasah Naqih Tabb & Partners - Consulting Engineers.*

Supervision of infrastructure projects involving water and wastewater networks.

Working on master plans for water supply for Canas of Baalbeck, El-Hermal and Akkar. The work includes the site inspection of the demographical state, the potable water state, the waste water state and the major springs and wells in these regions.

1993 - 1995 *Société Mouawad-Eddé - Contractor.*

1- Site supervisor for the construction and completion of many buildings in Hazmieh, Adma, Warwar, Sin-El-Fil and Tabaris regions: controlling the accuracy of site execution, organizing tasks of technicians and workers, commanding the materials required, payment of all intervenors on the site.

2- Site supervisor and safety officer for substructure works in Beirut Central District (SOLIDERE)

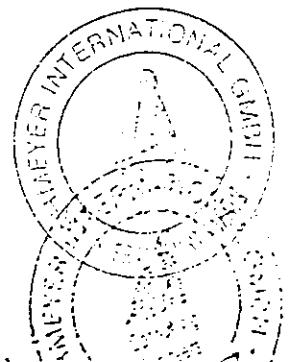
1986 - 1989 In Canada, supervising residential buildings construction for private developers.

1985 *Société d'Etude et d'Equipement d'Entreprises (SEEE).*

Two months training in the civil engineering department. Working on T.G.V. Atlantic line project.

Memberships

Ordre des Ingénieurs et Architectes du Liban Nord.



Name: Houthaima Rashid Date of Birth: 1956
 Position: Civil Engineer Nationality: Lebanese
 Years with Firm: 16
 Place of Work: Office Dar Al Handasah
 Proposed Position: Operation Supervision - Administrative

Education

Diplome d'Ingénieur en Génie Civil, 1981, Ecole Nationale des Travaux Public de l'Etat, France.

Qualifications

Over 16 years of experience in quantity measurement and contract administration for supervision of construction projects such as highways, water and waste water and buildings.

Languages:

	Reading	Speaking	Writing
English	4	4	4
Arabic	5	5	5
French	5	5	5

Experience record

1981 To Date With DAR AL HANDASAH NAZIH TALES & Partners as quantity surveyor and administration of contracts for supervision projects

Project: Road rehabilitation with CDR, 1981-1989

This project consisted of the rehabilitation of more than 500 kms of the main roads in Lebanon. Was responsible for computation and checking of executed quantities in comparison with the bill of quantities and preparation of payment certificates to the contractors.

Project: Water Resource Projects with MHER, 1990-1997

Quantity surveyor on a number of water resource projects including rehabilitation of Ras El-Ain in Tyr and Ain El-Samak - Caza of Tripoli, Damour Dam, Qsam source exploitation, Maqne lake, Ras El Meh Lake, water networks for Darniyeh and Minieh. Calculated estimated quantities during design and later held measurement books and calculated executed quantities for the projects. Was responsible for report preparation and budget control as well as preparation of comparative bills of quantities and variations.

Project: Highway Jieh-Zahrani with CEGP, 1992-1993

Estimated quantities and prepared final bill of quantities and engineer's estimate.

Project: Upgrading of Beirut city Services with CEGP, 1993-1994

Chief quantity surveyor for cost and quantity control. Prepared progress report and maintained cost tracking reports.

Project: Jounieh-Ekerke Road with CDR, 1994-1997

Chief quantity surveyor for cost and quantity control. Prepared progress report and maintained cost tracking reports.

Project: Bekaa-Hermel water and wastewater networks with MHER, 1996-1997

Estimated quantities and prepared final bill of quantities and engineer's estimate.



Name: Samih Abou Chacra
Position: Civil Engineer
Date of Birth: 1951
Nationality: Lebanese
Languages: Arabic, French, English and Russian

Key Qualifications

- Over eighteen years of experience in Highway Design and Supervision with emphasis on design of drainage and hydraulic structures.
- Project manager on small waste water scheme projects in towns and villages in Mount Lebanon.
- Project manager for Supervision of Roads Projects in Bekaa.
- Project manager for Design of Bahsas - Kosba - Cedars roads.

Education

- Master of Science in Civil Engineering, Moscow Automobile and Road Construction Institute, USSR, 1979.

Experience Record

1995 to date: Project manager with Dar Al Handasah Nazih Taleb & Partners.

1994 - 1995 With Dar Al Handasah Nazih Taleb & Partners Beirut Office as Senior Highway design engineer for Baalbeck Syria Border Freeway 60kms length 5 interchanges and about 40 over passes and under passes way.

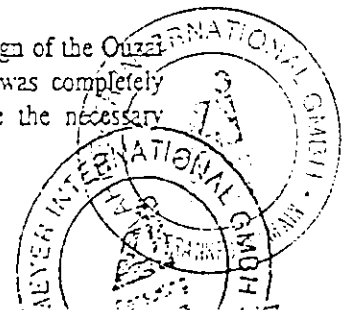
- Project manager for waste water scheme for towns and villages in the Chouf area, Lebanon.

1990 - 1993 With Dar Al Handasah Nazih Taleb & Partners as Assist. Resident Engineer for the supervision of Hajja Al-Khusum Road in Yemen. 60kms length with 6 bridges and 325 Box-culverts and 15 Retaining Walls.

1988 - 1990 With Dar Al Handasah (Shair & Partners) as drainage and highway design engineer, participated in the design and supervision of more than 100Kms of roads in Moritania. (Bogué-Kaïda) road-Senegal Border according to international standards.

1985 - 1988 Highway design engineer, participated in preparing preliminary study and final engineering design for Jiyé-Zahrani expressway which is constituted of 3x2 lanes + 2 service road lanes and 22Kms long. It includes 5 interchanges, 4 major bridges, 23 overpasses and underpasses linking the town of Jiyeh to Zahrani and passing through the important town of Saïda. Design of waste water and drainage systems in cities through which highway passes.

1983 - 1985 Assistant highway design engineer, participated in the design of the Ouzaï highway (7.4Kms) which forms the Southern entrance of Beirut. This highway was completely redesigned and new vertical and horizontal abutments were produced to provide the necessary capacity standards that fits international highway.



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

1981 - 1983 Assistant highway design engineer, participated in the design of Sofar - Dahr El Baidar highway (5Kms). Duties included a hydrological survey of the road environment, assisting in studying the plans and profiles for this section which is the most critical part of the international highway between Beirut and Syrian Frontiers as it is the only opening in the Western Chain of the Lebanese mountains. It needed a complete redesign to provide the necessary safety and capacity standards that fits international highway.

1979 - 1981 With Dar Al Handasah Nazih Taleb & Partners as Assistant highway design engineer, participated in the design of the 5Kms road leading to the presidential palace in Baabda, Lebanon.

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.)

