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THE SOCIALIST REPUBLIC OF VIETNAM

Technical report: Mission report of the chief technical adviser *

Prepared for the Government of the Socialist Republic of Vietnam
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of O. Scedrov, chief technical adviser/technologist

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Vienna

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1 S U M M A R Y

The three-month field mission of the Chief Technical Adviser (CTA) lasted from May to August 1993.

Mr. U. Strenger's, the newly selected Plant Engineer (PTE) expert, two-month mission was from May to July 1993.

- The slaughter rate in the Vissan, the only operating slaughterhouse of the international standard in HoChiMinh City, was lower than two years ago and amounted approximately to 300 to 400 pigs and 30 to 60 cattle per day. The Vissan Management expects a substantial increase of slaughter soon because they are just about to make a bigger contract with Russia for meat export. The current rate of slaughter is not sufficient to maintain the Project pilot plant production.

No veterinarian was employed by the Project as it was two years ago and Mr. Tran Tuu, the National Project Director (NPD) promised to engage one. About 800 kg of frozen pig pancreas was stored at -18℃ in the Vissan collected till April 1993 by the UNIPHA workers. The Collectorgane Co. in France accepted that pancreas for purchase which was not realized because of a too low rate of slaughter in the Vissan. The collected pancreas will be used to run a part of the experimantal production of the pancreatin in the Project pilot plant. Lower yields and enzymes activity of the product can be expected because the deep frozen pancreas was kept longer than six months and the autolysis started.

- Some times ago the UNIPHA became an independent enterprise not more in charge of several pharmaceutical factories, including the Factory "2 Sep.". From the beginning the Project was a part of the Factory "2 Sep." and the facilities, including quality control laboratory, Tableting Department and the Factory personnel could be used for the Project. Recently the Project is without relations with the Factory "2 Sep." and only the UNIPHA, the National Counterpart, is managing the Project. The present UNIPHA funds are very limited and, among others, the Project has no sufficient personnel.

A possible solution is to look for the development funds of the Vietnamese Government, through the Committee for Science and Technology in HoChiMinh City.

- The Bason Navy Shipyard in HoChiMinh City manufactured a part of the Project equipment which was postponed many times and all in all approximately for two years. That was the main reason of the substantial delay of the Project implementation. By the end of the CTA mission all items that could be manufactured in the Bason workshops were completed and installed on the Project site but not any test was made after that. It remained to be fulfilled: supply a Diesel generator of 125 kVA, the refrigerated truck of 8 m^3 at -18℃ did not meet the requirements (the inside temperature was only -13℃ and the engine was a second hand), the cold room of 20 m^3 at +4℃ and the water cooling unit of 3 to 4 m^3/h cooled water at 5℃ to 8℃ were not checked, the stainless steel for the manufacture of items was not analysed by an independent quality control laboratory, certificates of the manufactured items were prepared only partially and the polishing of inside parts of items was not done precisely enough. The works on piping, power and water supply, and sewage system were in the course. A serious problem remained, the electrical installations in the explosion hazard rooms have to be checked for safety by an Occupational Safety Institute as soon as possible.
- The reconstruction works of the Project performed by the Institute of Architectural Design and Constructions were an obligation of the Vietnamese side, nevertheless quoted as an essential part for the fulfillment of the Project. Their delay caused substantial postponement and was sometimes a reason of the Bason delay because of the connected works. The reconstruction works were stopped several times because of shortage of the UNIPHA funds and the payment was not done in time. Certain works have remained: construction of a simple shelter on the roof that is very urgent for the protection of two air exhange motors from rain and corrosion, finishing of the biochemical and the quality control laboratories, and building of a door, a few foundations for equipment, and partition walls.
- Both the Bason obligations and the building reconstruction works are supervised by the Design Institute of Chemical Industry (DICI), Hanoi. The DICI engineers make many efforts to complete the Bason certificates of the manufactured items and prepare their operating manuals for them. A particular problem are the

explosion proof electrical installations in the premises with the possibility of acetone evaporation. The DICI have to take care of that, control the Bason and engage an Occupational Safety Institute immediately.

- Three new subcontracts were made in May 1993, two with the DICI and the third with Prof. Pham Hung Viet, Hanoi University. The required funds were transfered from the Budget Line 11.99 of the international experts.

- According to one of the new subcontracts the DICI had to install and commission the Project equipment purchased abroad. That was mainly performed and only the installation of a few simpler items connected with the reconstruction works, that were not done at that time, have remained.

- The last DICI subcontract was for the installation of the process control system. Because of lack of six items in the process control the DICI did not start with the installation at all. It is a serious problem that can cause a new and an unexpected postponement of the Project implementation.

Although it is hardly possible to find a supplier it is expected that the UNIDO Purchase Section urgently solves the problem of six lacking items.

The subcontract with Prof. Viet was for the installation and testing of the laboratory equipment. The power and water supply and the installation of air conditioners in the biochemical and the quality control laboratory were also included. The installation of the laboratory equipment was done without proper testing of the equipment after that. The electrical installations in both laboratories and the water supply in the biochemical laboratory were performed. The water supply, the hot stage and the installation of an air conditioner in the first room of the quality control laboratory were in their course.

Prof. Viet's work team was not the same as quoted in his offer. The team started to install the sensitive equipment without a voltage stabilizer which is necessary in HoChiMinh City, and the refrigerated centrifuge before receiving any manual. The CTA stopped them. The spectrophotometer and the refrigerated centrifuge were found to need repair according to the team, and were put in order in three weeks.

The training course on the usage of the laboratory equipment delivered by the team to the Project personnel was mainly theoretical without a sufficient practical work. After the team left for Hanoi, and the refrigerated centrifuge was used for the first time it did not work correctly. Lower speeds and higher temperatures were found than the adjusted on the instruments. The CTA recommended to request Prof. Viet to repair the item immediately, and suggested postponement of the final payment until all the equipment and apparatus installed by his team function correctly.

- A few days before the CTA departure from Vietnam the biochemical laboratory was set up. That was done during the CTA's mission and before that the laboratory was an empty room. It remained to be solved: an efficient exhaust fan for the hot stage, removal of a main power switch box from the laboratory, and checking of the water boiler of 300 lit there. If necessary to provide an additional heat insullation or a partition wall. It lasted a week more to convince the Vietnamese side of the Project to remove from the store all glassware, chemicals and accessories and place them in shelves in the laboratory. The biochemical laboratory was ready for the work three days before the CTA departure. The experiments of the preparation of chymotrypsin and trypsin started in the laboratory under the guidance of Prof. Nguyen Dinh Huyen and with the CTA's suggestions.

- The existing quality control laboratory consists of three rooms, the main, the physical and the microbiological. All the rooms were set up before the CTA arrival to HoChiMinh City, but without sufficient taps and electrical sockets in the rooms, without a hot stage in the first room and with an air conditioner only in the physical room.

The quality control laboratory, it seems, does not belong to the Project and is an independent unit of the UNIPHA. Three pharmacists, employees of the laboratory, are not the Project personnel. It was arranged from the very beginning that the Project will use the quality control laboratory, including the microbiological one, of the Pharmaceutical Factory "2 Sep.". Because the Project has no more any connection with the Factory a separate quality control laboratory is needed. Complete equipment

for that laboratory was not possible to purchase by the Project because no more funds were available. Especially the microbiological laboratory could not be equipped for an efficient work. The determination of the enzymes activity will be possible in the laboratory.

- Because the installation of the Project equipment was not completed the Closing Tripartite Review (TPR) Meeting of the Project was postponed later this year.
- By the end of May 1993 the NPD followed the suggestion of Dr. Meixner, the UNIDO Country Director (UCD) Hanoi, and cancelled the 1.5 m/m Industrial Pharmacist's mission and reduced the Quality Control Expert's(QCE) mission from two to one month. The remaining funds were used for new subcontracts with the DICI and Prof. Viet.
- The mission of Mrs. Pavelić, the QCE, was postponed several times because of many new delays of the installation of the Project equipment. At last the simultaneous fielding of the QCE and the CTA in October 1993 was arranged by UNIDO.

The QCE mission was reduced altogether from four to one month. Only the most necessary quality control of the final products is possible to introduce in one month time. The GMP includes an up-to-date quality assurance with the in-process control and the quality control of raw materials and chemicals. A two months period is a minimum to carry out such a quality assurance. The CTA recommended expansion of the QCE mission to two months, using the Equipment Budget Line 42.00.

- To carry out the objectives of the Project, to train the personnel in the regular production on a laboratory and pilot plant scale for a longer period, to improve the existing Project technologies, to introduce new products from other slaughterhouse by-products as well as from some domestic plants and sea animals, including also products obtained by his methods, Prof. Nguyen Dinh Huyen, HoChiMinh City University, an experienced biochemist, was appointed in August 1993 the National Consultant of the Project. Prof. Huyen was one of the creators of the first Project Document and was involved in the Project before it started and continued the activities during the Project lifetime. It is adviseable as a benefit for the Project to engage Prof. Huyen for

a longer period and after its termination. Prof. Huyen included his coworkers from the University in the Project activities. Among others they would help to the Project personnel, which is not sufficient, to run the production.

After many repeated postponements of the installation of the Project equipment it remained only one to two months to the CTA to train the Project personnel in the regular production. In the Project Work Plan one and a half years were envisaged for a proper training of the personnel. Prof. Huyen is expected to ensure that the Project production will not stop after a few experimental batches.

The main achievement of the CTA mission was the introduction to the Project the post of a National Consultant and appointment of Prof. Nguyen Dinh Huyen.

- For the beginning of the Project production it is suggested to produce only chymotrypsin technical grade with about 20% trypsin and not the higher purified α-chymotrypsin and trypsin. The amount of cattle pancreas is very limited, only one to two batches can be made weekly, and the purification of these enzymes is rather tiring.

Pancreatin is recommended to produce by extraction on a pilot plant scale and not by drying the pancreas only for the so-called "insoluble pancreatin". To produce a product by two methods on a pilot plant scale, or on an industrial scale, is never justified, especially because of limited amount of the pig pancreas.

Dry bile is very attractive product of the Project from the economical point of view. There is a demand on the world market for approximately US$ 70 per kg. Formalin for preservation is the only chemical required for the processing. The problem is a very limited rate of slaughter of cattle in the Vissan, and approximately only two batches can be processed per week.

- Lists of the raw materials, chemicals and yields for all the Project products were prepared for one and ten batches and for 100 kg of raw materials, pancreas and bile.

The CTA suggests two new products from the slaughterhouse raw materials, the thyroid gland powder and peptone as a part of the regular production that could be processed by the existing equipment of the Project. Thus the Project equipment would be

used more efficiently and the Project economy improved.

- According to the NPD the Vietnamese Government has recently agreed to bear a part of expenses of the power supply for the Project. It is carried out by the Bason and was included in their contract with UNIDO. The amount, equivalent to USS 31,000, could be used for purchase of some equipment useful for the Project implementation. A Priority List of the items suggested to be supplied was elaborated by the NPD and the CTA. It was quoted: a tablet enteric coating machine, a freeze drier, three air conditioners, and some small laboratory equipment, a water bidistilling unit, a vacuum pump, two mercury manometers, a vacuum drier, and a laboratory autoclave.

After his return home the CTA collected prices of quoted items. The laboratory equipment was more expensive than expected in HoChiMinh City. However, that equipment is very necessary for the completion of the Project. The QCE called attention that a powerful disperser is required for the quality of lipase and the CTA added it to the List. The CTA has recommended a New Priority List in which laboratory items are quoted first, as most important. Several invoices are included in the Report. In the case that the surplus of USS 31,000 will not be realized, the CTA recommends use of the existing Project funds, Budget Line 42.00. It depends on UNIDO which amount can be spent respecting the New Priority List.

- Following the advice of the QCE a separate list was prepared for purchase of several quality control chemicals, glassware and accessories. A special attention was paid to the enzyme standard preparations. These were so far supplied by UNIDO two times and each time not the proper enzyme standards, as requested by the CTA Report of 29 December 1991. Now the actual international standard enzyme samples were requested. An urgent purchase is recommended to be done by UNIDO.

- A part of chemicals and accessories for the pilot plant production have to be purchased by the UNIPHA for which a list was prepared as well during the CTA mission in Vietnam. It is advised to use the Allotments for Local Expenditures 1993 of USS 1,500 authorized to the Project by UNIDO at the end of July 1993.

- Few words about the problems of communication during the CTA mission in HoChiMinh City and suggestions for the future.
Mr. Tran Ngoc An is a very efficient English interpreter acting from the beginning of the Project lifetime. During the last CTA mission Mr. An was contracted only half time which caused substantial problems of communication, because of the very poor English of the Project personnel. It is strongly recommended to employ Mr. An permanently. This is a condition for any successful communication and cooperation during the next mission of the QCE and the CTA.
Mr. Nguyen Chanh Ut was the only driver employed by the UNIPHA, who drove preferably the Project car. At the same time Mr. Ut was at the disposal of the NPD in his separate car. That was the reason of many unpleasant things, misunderstandings and waste of the CTA's time. The same happened during the two CTA's missions in 1991. To avoid such troubles it is strongly recommended to employ another driver by the UNIPHA, especially during the next QCE and the CTA mission. This is a condition more to avoid the experts' waste time.
Usually the CTA arrived by the Project car to the site earlier than the Project personnel including the interpreter. To avoid such a wasting of time it is recommended that during the next mission of the QCE and the CTA they start work when all the Project personnel are on the site.
The new regulations of the UNIDO Hanoi asked that all communications of the international experts with the UNIDO Headquarters in Vienna go through UNIDO and UNDP in Hanoi and not directly. For that the BSO was not informed in time about some important things of the Project. To facilitate the Project fulfilment it is suggested to make possible a direct communication from the UNDP Liaison Office in HoChiMinh City. That was practiced for years.
The UCD in Hanoi should not interfere deeply into the problems of a project and leave them to the CTA and the experts.
- In the chapter General Consideration the main problems during the lifetime of the Project are quoted and commented as well as their possible satisfactory solutions for the benefit of the Project.

2 INTRODUCTION

2.1 Official Arrangements

A three-month mission of the Chief Technical Adviser (CTA) started on 6 May 1993 and was completed on 6 August 1993. That was the CTA fourth field mission.

The Terms of Reference of the CTA mission is enclosed as Annex 5.1. The CTA stayed in HoChiMinh City from 9 May to 2 August 1993. There was one day briefing in the UNIDO Headquarters in Vienna on 7 May 1993, and two days debriefing in Vienna on 4 and 5 August 1993.

2.2 Objectives of the Mission

- Review and advise the organization, performance and control of the collection, cleaning, storage and transportation of the slaughterhouse by-products in compliance with the international standards.
- Review and assess the progress of the local sub-contractors Bason, DICI and Prof. Viet and advise and assist in preparation of their reports to ensure timely payments for goods and services completed.
- Supervise, advise and guide in the installation and commissioning of equipment, possibly in remodelling of the facilities.
- Advise and guide the National Project Authorities for future development sustenance after the lifetime of the Project.

The CTA Mision Work Programme is enclosed as Annex 5.2 and 5.3. A few days after the arrival to the Project site, on 17 May 1993, the CTA and Mr. U. Strenger, the Expert Plant Engineer (PTE), prepared their joint Status Report. Two copies of the Report were delivered to Dr. M.J. Meixner, the UNIDO Country Director (UCD) in Vietnam, with request to forward a copy to Dr. Z. Csizer, the Backstopping Officer (BSO), in UNIDO, Vienna.

3 FINDINGS AND WORK PERFORMED

The CTA Terms of Reference (Annex 5.1) could not be completely performed because of substantial delay of the Bason obligations, the Building Co. workings and the lack of six process control items.

3.1 Slaughterhouse By-Products in South Vietnam

A separate CTA Report on slaughterhouse by-products collection and trimming was not possible to prepare earlier due to a low level of slaughter in the South Vietnam slaughterhouses of international standard. For that, only two visits to the Vissan slaughterhouse were arranged, the second one by the end of the CTA stay in HoChiMinh City.

That Report was drafted by the CTA only on 31 July 1993 in HoChiMinh City. The final version of the Report was prepared and given below.

Three slaughterhouses can be taken into consideration: The Vissan and the Cau Tre slaughterhouses in HoChiMinh City and the My Tho slaughterhouse in My Tho City 80 km south from HoChiMinh City.

The Cau Tre and My Tho slaughterhouses temporarily stop slaughter pigs but slaughter only ducks. They expect to have a contract with Russia for meat export. For that reason the slaughter capacity in the Vissan is now lower than usual. They expect a bigger contract with Russia for meat export as well.

By the beginning of his field mission, in May 1993, the CTA paid a visit to Prof.Dr. Le Minh Chi, Director of the Animal Health Department in Vietnam. According to Prof. Chi, there is no risk of Salmonella in HoChiMinh City at all since a regular daily check is made by the Government Veterinary Service. Prof. Chi confirmed that there is also a regular daily veterinary inspection at the Vissan slaughterhouse, done by a team of government veterinarians from the HoChiMinh City Authority. Concerning the Foot and Mouth Disease (FMD), the CTA was informed by Prof. Chi that there still exists the FMD in the neighbouring countries: Laos, Thailand, and Cambodia. Sometimes a few cases appear on the Vietnam borders. The inoculation in Vietnam is done with the U.S.A. vaccine. No animal with FMD can be slaughtered in

the Vissan and according to Prof. Chi's opinion, there is no danger at all for the Project.

Prof. Hoang An, Coordinator of the Project, was informed on 14 May 1993 by the Vissan Management that the slaughter at that period was very limited amounting to 200 to 250 pigs per day only and no cattle.

That was the reason why the CTA visits to the Vissan slaughterhouse were arranged on 4 June and 20 July 1993. The first arrangement for the CTA visit on 27 May 1993 was cancelled at the last moment because of the CTA meeting with Dr. Meixner, UCD, Hanoi, in HoChiMinh City.

In the morning of 4 June 1993, the CTA met Mr. Le Hong Phong, Vice President of the Production Department in Vissan. All other Vissan managers were abroad looking for new contracts for meat exportation. The Vissan exports meat to Russia, Malaysia, Singapore and Hong Kong. It is an evidence that the Vissan maintains the international standard. A team of veterinarians of its own and in addition an independent team of the Government veterinarians check the slaughter every day. The animals are examined very carefully prior and after slaughter. According to Mr. Phong in June 1993 the Vissan slaughtered 400 pigs per night in average.

On 20 July 1993, the CTA was in the Vissan at night during the slaughter and met Mr. Phong again and Mr. Pham Thanh Nhon, the Vissan veterinarian duty officer. That night, the Vissan slaughtered 60 cattle and 300 pigs. According to Mr. Phong, the average Vissan slaughter of 30 to 50 cattle and 300 pigs per day is only temporary. They expect to increase the slaughter in September or October 1993 substantially. So far they have no bigger contract with Russia for meat export. They hope they will soon have such a contract.

That night in the Vissan, four workers of UNIPHA were collecting catle pancreas using hands only, following the instruction of the Collectorgane Co.,France, video tape. It was not very successsful because they could only remove a smaller part of each pancreas.The CTA advised them to collect the cattle pancreas using a knife. The workers were not skilled enough. Later on, Mr. Tran Tuu, the National Project Director (NPD), agreed to engage temporary one

of the Vissan veterinarian to instruct and help the UNIPHA workers. The technique of pancreas collecting with hands can be applied to the pig pancreas only and not to that of the cattle. Mr. Nhon, the veterinarian, collected a few pancreas very efficiently with knife and weighted two of them. One was 150 gr and the other 175 gr, which is more than the average weight of a cattle pancreas of 140 gr. It is a pity that Mrs. Dinh Xuan Huong, the Project veterinarian of two years ago, was no more employed.

That night 1.7 kg of cattle pancreas was collected, but it was not sufficiently cleaned because the workers were unexperienced. The collected pancreas was put at -16℃ in a freezing store and not primarily into the contact freezer at -45℃ as it was arranged two years ago. After a quick frost at -45℃ the pancreas can be transferred to the freezing store at -20℃. The UNIPHA workers collected a total of 8 kg of cattle pancreas during three nights. Three Government veterinarians checked very carefully every slaughtered animal in the Vissan that night.

For pancreatin processing, 35 kg pig pancreas for one batch is needed, approximately from 500 pigs. A batch can be done every day or every other day depending on the rate of slaughter. For dry bile production, 35 kg of cattle bile is required for a batch, approximately from 175 heads of cattle. Considering the actual slaughter, a batch can be done every three days. For trypsin and chymotrypsin processing, 35 kg batches of cattle pancreas are chosen and 250 heads of cattle are required. One to two batches can be done per week according to the current slaughter. The present rate of slaughter is not sufficient to maintain the project pilot plant production.

3.1.1 Collected Pig Pancreas and Collectorgane Co.

In June 1992 the UNIPHA sent a sample of 48 kg of frozen pig pancreas to the Collectorgane Co. in France. The Collectorgane accepted the quality of that pancreas asking to purchase it (Annex 5.4 and 5.5). That was not realized because of a too low rate of slaughter in the Vissan.

There is stored about 800 kg of frozen pig pancreas in the Vissan collected by the UNIPHA workers starting in October 1992 up to

April 1993. The CTA checked the condition of storage and found -18℃ in the Vissan store-house. Pancreas was packed in plastic bags with net weights (for instance 21 kg) and date of collection (for instance 3 Jan) written by hand. The national project authorities would like to use that frozen pancreas for the trial runs and first batches of the Project pilot plant production of pancreatin. Lower yields and activities of the product can be expected because the deep frozen pancreas was kept longer than six months. For that reason losses of enzyme activities caused by autolysis will happen. On several occasions the CTA called attention of the National Project Authorities.

3.1.2 Project Waste Pancreas Processing

The tray drier for waste pancreas (item 01.10) was left out from the Bason manufacture a year ago, in July 1992, after the Tripartite Review Meeting (3.3.1.1). As a possible solution remained to ask the Vissan to include the Project waste pancreas in their solid waste processing. The CTA discussed with Mr. Phong that possibility. The Vissan has a pressure drier for dry its solid waste. They sell their dried solid waste for animal feed. Mr. Phong agreed to include the project waste pancreas from pancreatin and chymotrypsin and trypsin processing in the Vissan system of solid waste processing. It is a pity that it was not possible to see the Vissan equipment for that purpose during the CTA two visits.

3.2 Organization of the Project

According to the new organization the UNIPHA is an independent enterprise and no more managing the twelve pharmaceutical factories, including the Factory "2 Sep.", within UNIPHA as it was before. The UNIPHA started to establish a new drug formulation unit under the name BIOPHA and would like to arrange a drug shopping centre in front of the Project building. The BIOPHA drug formulation unit would serve for formulation of the project products, pancreatin, dry bile, chymotrypsin and trypsin (as pharmaceutical raw materials), to final forms of drugs, tablets, entero-coated tablets and enzymatic ointments. At present the BIOPHA is under construction.

From the very beginning the Project was a part, a department, of the Pharmaceutical factory "2 Sep.". At present the Project is no more connected with the Factory "2 Sep.". Many facilities of the Factory had to be used by the Project, as water and electricity supply, drug formulation unit, quality control laboratory, microbiological laboratory, glassware and chemicals, as well as the Factory personnel. The director of the Factory "2 Sep." was from the very beginning appointed the Head of the Unit, i.e. responsible for all Project activities.

3.2.1 Project Personnel

By the middle of 1992 Mr. Nguyen Quang Thieu, pharmacist, was appointed as the new Head of the Project Unit. Mr. Thieu is a well experienced specialist but has no relations to the Factory "2 Sep.". During the CTA field mission Mr. Pham Van Dao and Miss. Nguyen Thi Lan Huong, both pharmacists and fellows in Cuba in 1992, were employed by the Project. Mr. Dao is responsible for the pilot plant and Miss. Lan Huong for the biochemical laboratory.

Earlier Mr. Pham Cao Thang, pharmacist and as well fellow in Cuba, was employed in the quality control laboratory. It is not clear if that laboratory belongs to the Project or is an independent unit of the UNIPHA.

Because of the limited funds of the UNIPHA the Project has not sufficient personnel. There is no maintenance engineer employed by the UNIPHA. Such an engineer would be very useful during the installation of the Project pilot plant and needed for regular production. There is no veterinerian employed, responsible to ensure the Project with animal by-products, as it was two years ago. There are no technicians and no workers in the Project. A few Project employees, pharmacists, moved the store of the Project foreign equipment as manual workers for two to three days during the CTA mission. The Project employees are less paid then the average employee in the Factory "2 Sep.".

3.3 Subcontractors

In addition to the Bason Navy Shipyard, HoChiMinh City, and the Design Institute of Chemical Industry (DICI), Hanoi, subcontracts of 1992, three new subcontracts were made during the CTA field mission. Two subcontracts with the DICI:

- The first one for installation and commissioning of all foreign equipment including the Kavalier glass rectication column for acetone, for a total of US$ 9,490.
- The second one for installation and commissioning of the instrumentation for a complete process control of the Project pilot plant for a total of US$ 5,860.
- The last subcontract with Prof. Pham Hung Viet, Hanoi University, according to his offer of 20 April 1993 (Annex 5.6), for installation and testing of the laboratory equipment, and training of the Project personnel including electricity supply for the quality control laboratory, for a total of US$ 9,450.

Later on, during the CTA stay in HoChiMinh City, two items from Prof. Viet's offer of 20 April 1993, No. 12 and 13, namely glassware, chemicals and minor laboratory apparatus (amounted to US$ 1,600) were left out from Prof. Viet's contract, after many efforts. Prof. Viet's items 12 and 13 were replaced by:

- The electricity and water supply, and installation of two air conditioners including drilling holes in the wall, in the biochemical laboratory.
- The water supply, the hot stage (digester) with an exhaust fan, and installation of an air conditioner including drilling a hole in the wall, in the first room of the quality control laboratory.

The same amount of US$ 1,600 remained for the above quoted, and thus the total of Prof. Viet's subcontract was unchanged. All that (for US$ 1,600), including the electricity supply in the quality control laboratories, was the obligation of the UNIPHA and accepted to be paid by UNIDO because of very serious shortage of the UNIPHA funds.

The three new subcontracts were recommended and inspired by Dr. M.J.Meixner, the UCD Hanoi and Mr. Nguyen Khac Tiep, the Programme Officer, UNIDO Hanoi. Especially the subcontract with Prof. Viet was all the time induced very intensively by Dr. Meixner and Mr. Tiep.

3.3.1 Bason Navy Shipyard

Bason was primarily responsible for the Project substantial and serious delay. Bason postponed their manufacture of items contracted with UNIDO many times during two years, especially in the last twelve months and very often during the CTA and PTE stay in HoChiMinh City.

By the end of the CTA mission the Bason completed all items that could be manufactured in their workshops. The items were checked in the Bason premises under the DICI supervision and installed on the project site. No control was done after that.

Remained unfulfilled:

- The quality of the stainless steel used for the manufacture of items that was examined by the Bason Shipyard Chemical Laboratory only and not by an independent quality control institution. Stainless steel equal to the US steel X18H12M2T, must be used for the Bason manufacture.
- Cold room of 20 m^3 at +4℃, item 05.03, that was placed on the site in March 1993 and the inside temperature was not checked, because no power of 380 V was available for the refrigerator in the cold room.
- Refrigerated truck of 8 m^3 at -18℃, item 05.02, did not fulfil the requirements. During June and July 1993 Mr. Nguyen Nam, the DICI engineer, and the CTA checked the temperature inside the truck many times (at least for six days) each time during four to six hours. Only twice -13℃ was reached as the lowest temperature, and not the needed -18℃. A bimetallic thermometer was built in the driver's cab and did not correspond to the laboratory ethanolic thermometer (from -50℃ to +50℃, sensitivity 0.2℃) used to check the temperature inside of the refrigerated space. For instance, the bimetallic thermometer showed -26℃ while the laboratory thermometer -13℃. Moreover, the truck was second hand with a bad sound of the engine, with very worn out wheels and the steering-wheel shifted from right to left.
- Diesel generator of 125 kVA, item 07.01, was not supplied by the Bason because the price of December 1991 of approximately US$ 2,600 for a Russian generator amounts, today to approximately US$ 12,000 and the Bason has no funds available. That was a verbal explanation of Mr. Nguyen Quoc An, Deputy Director of the Bason

Piping Factory given by the end of the CTA stay in HoChiMinh City.

- Water cooling unit of 200,000 kJ/h of 3 to 4 m^3/h of cooled water at 5℃ to 8℃, item 02.03, was delivered to the Project site on 30 July 1993, at the end of the CTA stay in the field, and was not checked at all. No documents and drawings were available in spite of repeated request by the DICI representatives, the Vietnamese Project authorities and the CTA. After that Mr. Phan Van Tran, Vice Director, Bason Piping Factory, informed the CTA that the water cooling unit is approximately for US$ 8,000 more expensive than was contracted with UNIDO. That item was produced by the Polytechnical Institute of the HoChiMinh City University under the Bason arrangement.
- Steam generator of 300 kg/h steam, item 06.06, has the Government attest and was not checked on the site because there was no water nor power in the Project building.
- Transformer of 400 kVA instead of the contracted 630 kVA, was manufactured by the Bason since no higher capacity was allowed by the City Authorities. The transformer was tested by the Government. The 400 kVA is very close to the Project consumption. The transformer is expected to be cheaper than contracted.
- The polishing of inside parts of the items manufactured by the Bason, including propellers of stirrers, was not done precisely enough. The Bason improved a few items with an additional polishing. However, that problem has remained because of lack of experience of the Bason in the manufacture of precise equipment such as that used in pharmaceutical processing of natural sources, especially of the slaughterhouse by-products.
- Certificates of the items manufactured by the Bason were prepared only partially and the DICI representatives expect to solve the problem soon.
- Piping system at the Project site was mainly completed.
- Tap water supply was solved partially.
- Power supply was not solved completely, no 380 V at the Project site.
- Steam, compressed air, vacuum cold water, warm water supply were installed and not operated.
- Sewage system was only partially completed.

- Lighting was mainly solved.
- Electrical installations in the explosion hazard rooms are under question. These rooms are marked by numbers in Mr. Le Quang Minh's, the DICI engineer, report of 27 July 1993 (Annex 5.7). Bason or DICI have to engage a specialist from an Occupational Safety Institute in HoChiMinh City to check, as soon as possible, conditions of the power supply for safety.

3.3.1.1 Changes in the Equipment Manufacture by the Bason

After the arrival to HoChiMinh City the CTA learned that during the Second Tripartite Review Meeting in July 1992 a new item 01.12, stainless steel jacketed vessel of 50 lit with stirrer for US$ 1,200, was introduced and item 01.10, vacuum tray drier of 10 lit/h evaporated water for waste pancreas of approximately US$ 10,500, was left out from the Bason contract. The CTA was against that change and explained his point of view in many letters to Mrs. Valdes and Dr. Meixner.
The purpose of introduction of item 01.12 was the processing of acetone dried pancreas, so called "insoluble pancreatin". According to Mr. Hoang Phuc Tuan, Technical Adviser of the NPD, the Vietnamese side of the Project decided to produce,as one of the final forms of drugs, a preparation composed of pancreatin (extracted from pancreas) and dried pancreas powder. That is a French formulation which seems to be out of date. The CTA did not succeed to change the mind of the local Project authorities.
Item 01.10 was cancelled as too expensive. The sterilizer of waste pancreas of 100 lit, item 01.09, remained in the production of the Bason. There is no reason to sterilize the waste pancreas and after that leave it wet. It must be dried and as such could be sold for animal feed. To avoid the environment pollution the CTA arranged an inclusion of the Project waste pancreas in the Vissan slaughterhouse system of their solid waste processing (3.1.2). Finally, a sterilizer as item 01.09 can be useful in a type of production such as the Project pilot plant is.

3.3.1.2 Surplus of US$ 31,000 in the Bason Contract

According to the NPD the Vietnamese Government has recently agreed to bear a part of expenses of the power supply of the Project. It is carried out by the Bason and was included in their

contract with UNIDO. The funds for the above amount to equivalent of US$ 31,000. That sum would be withdrawn from the Bason contract and maybe used for purchase of some equipment useful for the Project implementation. A list of the items suggested to be purchased for the said amount was elaborated by the NPD and the CTA (Annex 5.8). During the CTA debriefing in Vienna Dr. Z. Csizer, the Backstopping Officer (BSO), asked UNDP Hanoi to confirm the above arrangement of the Vietnamese Government.

3.3.2 Design Institute of Chemical Industry (DICI), Hanoi

Three subcontracts were made with UNIDO, the first on 16 December 1992 and the second and third in June 1993.

3.3.2.1 First Subcontract: Provision of Engineering, Equipment Inspection, Erection Supervision and Operating Manual for the Project DP/VIE/86/016

The engineers of the DICI are continuously supervising the Bason duties including the manufacture of items, the installation of them, piping system, power and water supply, sewage system, as well as other Bason's obligations.

The DICI representatives make many efforts to complete the Bason certificates of the manufactured items, and prepare their own operating manuals for these items.

A particular problem must be pointed out, the explosion proof electrical installations in the explosion hazard rooms. Acetone, the main organic solvent of the Project processing, is one of the most inflammable and explosive among the organic solvents. Nobody of the Project personnel has any work experience with acetone. For that maximum safety measures have to be undertaken. It is needed to point out again at the paragraph of the Bason (3.3.1) that an Occupational Safety Institute in HoChiMinh City has to be asked to send immediately their specialists to check the power installations in the hazardous rooms for safety and the entire explosion proof conditions. If the Bason does not do it, the DICI must arrange for such a control himself. The approval of the Government Fire Protection Police must be asked for, quite

separately, after completion of the power installations in the explosion hazard rooms and before the commissioning and the start of trial runs of the Project pilot plant.
Among the other obligations, the DICI was responsible to prepare the lay-out of auxiliary equipment. It happened that the cold rooom, item 05.03, and three Westinghouse freezers, item 05.01, were arranged in the same room with the steam generator, item 06.06. For that reason a partition wall was decided to be built to protect the cold room and freezers from heating.
During the first visit to the Project premises, after the arrival to HoChiMinh City, the CTA suggested to move the meat grinding machine, item 01.01, from the ground floor to the second floor in the room of chymotrypsin and trypsin extraction to ensure the frozen state of the ground pancreas for the processing of pancreatin and chymotrypsin and trypsin. Any transportation of ground glands between the two floors at the high HoChiMinh City environment temperature would thaw them and diminish their enzymes activity by autolysis. All parties accepted the proposal and the meat grinder was located on the second floor.

3.3.2.2 Second Subcontract:
Installation and Commissioning
of the Project Pilot Plant Foreign Equipment

The DICI engineers installed the largest portion of the equipment purchased abroad. They succeeded to check the work of the two sensitive items, the Rina centrifuge, item 03.04, and the Anhydro spray drier, item 04.04. The centrifuge worked without vibrations at the highest speed of 1,400 r.p.m. without load. The spray drier nozzle worked satisfactorily.
It has remained to be installed the meat grinding machine, item 01.01, three Westinghouse freezers, item 05.01, and the water demineralization unit, item 09.02. Acetone regeneration column, item 02.01, was installed and not connected with the piping system of the pilot plant. Vent to the atmosphere on top of the column was not made during the CTA stay in HoChiMinh City.
For items 01.01 and 09.02 foundations were not completed, for item 09.02 foundation was not yet tiled with acid proof bricks, item 05.01 (three freezers) were not installed because there was

nc door and the room could not be locked.

The water demineralization unit, item 09.02, was installed temporary in a store to check the glass parts. Everything fitted and no glass tube was lacking, as Mr. Le Quang Minh the DICI engineer, was worried about.

Installation of the rectification column, item 02.01, was done in eight days, instead of estimated four weeks, by a very skilled DICI glass technician using few available drawings of the Kavalier, the column manufacturer. These drawings the DICI possessed for several months. The CTA was never informed about that till the last moment. The DICI was always stating that they had not any drawing or something in written from the Kavalier. A broken two m long glass tube was happily replaced by two one m tubes that were found as spare parts in the column package. Finally, it was nice that the column was successfully installed.

3.3.2.3 Third Subcontract:
Installation and Commissioning of the
Process Control Instruments of the
Project Pilot Plant

Six items of the process control are lacking. This is a very important problem and the items are quoted below:

1. 1 pc. TY02 electropneumatic converter 12114 of TIC 02 temperature control in vessel 02.1.
2. 1 pc. TY01 electropneumatic converter 12114 of TIC 01 temperature control in vessel 01.9.
3. 1 pc. TY03 electropneumatic converter 12114 of TIC 03. temperature control cooling water outlet vessel 02.1
4. 1 pc. QY09 7150 power supply for pH transmitter of QI 09 pH measurement in vessel 03.1.
5. 1 pc. LY10 337224011723 three-way magnetic valve of LCAL 10 level control in vessel 09.3.
6. 1 pc. LY11 337224011723 three-way magnetic valve of LCAL 11 level control in vessel 09.4.

This was the reason that Dr. Do Duy Phi, the DICI Director, decided not to start with the installation at all before receiving all necessary items. The DICI engineers estimated that 45 days will be needed for the completion of the process control

system.

Mr. Le Quang Minh, the DICI representative, Report on all three subcontracts of 27 and 28 July 1993 is enclosed as Annex 5.7.

3.3.2.3.1 Six Lacking Items of the Process Control

During the debriefing in Vienna the CTA met Mr. M.H. Alli and Mrs. B. Evers, UNIDO Purchase Section. They informed the CTA that the Honeywell Co. in Vienna, the main supplier of the process control instruments of two years ago, now refused to supply the six lacking items because of the U.S.A. embargo to Vietnam. Two years ago the embargo was not mentioned by the Honeywell. Mrs. Evers has recently asked for the supply of the six critical items from Great Britain being sure that she will succeed. Mrs. Evers promised to inform the CTA about that as soon as possible.

3.3.3 Prof. Pham Hung Viet, Hanoi University

Prof. Viet's team finalized the installation of the laboratory equipment and apparatus, made the electrical installations in the biochemical laboratory and in all the three rooms of the quality control laboratory. They completed the training course for the Project personnel on the use of the items installed three days before the CTA departure.

The water supply and the installation of two air conditioners in the biochemical laboratory, the water supply, hot stage with an exhaust fan and the installation of an air conditioner in the first room of the quality control laboratory are parts of Prof. Viet's subcontract. All that was arranged by the UNIPHA to be performed by the Institute of Architectural Design and Construction in HoChiMinh City (3.3.4) and paid back by Prof. Viet to the UNIPHA.

The water supply and the installation of two air conditioners in the biochemical laboratory were completed by the same Institute.

The water supply, the hot stage with an exhaust fan and the installation of an air conditioner in the first room of the quality control laboratory were not finalizad by the said Institute during the CTA stay in the field.

The three members of Prof. Viet's team, Mr. Do Phuc Quan, Mr. Le Van Chieu and Mr. Tran Pai Khanh that worked at the Project site

were doing, it seems, their master or doctorate theses under Prof. Viet's mentorship. Only one of them, Mr. Do Phuc Quan, was quoted in Prof. Viet's offer of 20 April 1993 (Annex 5.6) as his team member. None of them was able to communicate in English or another foreign language. They knew only very few English words. According to his offer of 20 April 1993 all his team members can speak English or German. By the beginning of the negotiations, on 8 June 1993, Prof. Viet promised to install himself the most sensitive apparatus including the spectrophotometer. It was a pity that Prof. Viet's stay at the Project site in HoChiMinh City for five days all together was used for negotiations and not for professional work. The second member of Prof. Viet's team from his offer, Prof. Tu Vong Nghi, the quality control expert, was not involved in the Prof. Viet's work team.

Two most sensitive and expensive apparatus, the Philips spectrophotometer and the Hemple refrigerated centrifuge, were found malfunctioned according to the work team and were repaired by them during three weeks and then installed. The Metrohm multidosimat was incomplete lacking a small part. That part was replaced by the team only during their stay on the site, in spite of Prof. Viet's promise to supply that part to the Project. Prof. Viet's subcontract had available funds for such an expense.

The team started to install the very sensitive apparatus without any voltage stabilizer. That is necessary in HoChiMinh City because of substantial current fluctuations. The CTA informed about that Prof. Viet in written (Annex 5.9) because he was worried that the sensitive laboratory apparatus could be damaged. Right after that two larger size voltage stabilizers were purchased by the Vietnamese side of the Project because Prof. Viet did not do it.

The Prof. Viet's team started to install the refrigerated centrifuge prior to receiving written instructions and the CTA stopped them.

The training course provided to the Project personnel was mainly theoretical without sufficient practical work. The CTA did not succeed to change the course to a more practical one. The course was completely in Vietnamese.

Two days later, after Prof. Viet's work team left for Hanoi, the refrigerated centrifuge was loaded and switched on for the first time. Lower speeds and higher temperatures were found than those adjusted on the centrifuge instruments. In the first example instead of +2℃ it was +10℃ and instead of 7,000 r.p.m. it was 3,500 r.p.m.. In the second case, after two days, it was +9℃ instead of 0℃ adjusted, and 4,000 r.p.m. instead of 8,000 r.p.m. adjusted. The CTA advised the NPD to ask immediately Prof. Viet to repair the refrigerated centrifuge because the CTA left Vietnam at the same day.

The CTA was worried about other apparatus especially about the spectrophotometer that was not checked by any quality control test. It was expected that it will be done by Prof. Nghi, the quality control expert of Prof. Viet's team from his offer which was not realized.

It is suggested to postpone final payment to Prof. Viet before complete correctness under work conditions of all apparatus installed by his team is reached.

3.3.4 Institute of Architectural Design and Constructions, HoChiMinh City

The reconstruction work of the Project was an obligation of the Vietnamese side. Nevertheless, the CTA would comment that matter as an essential part of the Project implementation. It has to be said that the delay of the reconstruction work caused a substantial postponement of the Project completion and was sometimes a reason of the Bason delay as well because of the connected works.

Mr. Tran Quang Minh, the civil engineer of the Institute, stopped the work several times because the payment of the UNIPHA was not done on time. After the payment a new portion of the reconstruction work was done. The problem was a very serious shortage of the UNIPHA funds.

- The biochemical laboratory was completed in the last ten days of the CTA stay in HoChiMinh City instead of two months earlier. The exhaust fan in the hot stage of the laboratory was not efficient enough and must be replaced by a stronger one. One of the main power switch boxes located in the laboratory has to be moved out

of the laboratory because of acetone evaporations that are explosion hazardous.

- The water supply, hot stage with an exhaust fan and the air conditioner installation (including a hole in the wall) were not completed in the first room of the quality control laboratory.
- Foundations for several items manufactured by the Bason and purchased abroad were not completed.
- The acid proof bricks are expected to be tiled on the foundation of the demineralized water unit, item 09.02, rooms No. 5 and 6, and of the acid resistant tank in the chymotrypsin and trypsin processing in room No. 16.
- The partition walls are due to be built between rooms No. 5 and 6, and in room No. 9.
- Doors of rooms No. 5 and 6 ought to be made.
- Two air exchange motors on the roof must be urgently provided with a simple shelter to protect them against corrosion especially because it was in the mid of the rainy season in HoChiMinh City. The CTA repeatedly asked for the shelter on the roof, even in written (Annex 5.10.3).

All these things are quoted in the report of Mr. Le Quang Minh, the DICI representative, of 28 July 1993 (Annex 5.7).

3.4 Laboratories

3.4.1 Project Biochemical Laboratory

When the CTA arrived the room of the biochemical laboratory was empty even without any built in tables. The CTA suggested and assisted in the design of the biochemical laboratory to Miss Dhong Thu Nga, civil engineer of the UNIPHA and Mr. Tran Quang Minh, civil engineer of the Institute of Architectural Design and Constructions in HoChiMinh City. It was promised by the UNIPHA to complete the laboratory till the beginning of June 1993. After many postponements the laboratory was set up

ten days before the CTA left Vietnam.

Remained unsolved:

- An exhaust fan in the hot stage that must be replaced by a more efficient one.
- A main power switch box that has to be moved out of the laboratory.

- The water boiler of 300 lit, item 06.05, needed for the entire pilot plant and laboratories was located in the biochemical laboratory by the PTE from the very beginning. In the case that the laboratory will be overwarmed by the boiler, an additional heat insulation or a partition wall will be necessary. No test was possible to perform because tap water and current were not connected at the time to the boiler.

It lasted a week more to convince the Vietnamese side of the Project to remove from the store all glassware, chemicals and accessories, purchased abroad, and place them on the shelves in the laboratory. The two CTA's letters to the NPD about that problem are enclosed (Annex 5.10 part 1 and 5.11 part 1). The local Project authorities supplied then some accessories for the laboratory including a kitchen size meat grinder.

The biochemical laboratory was ready for the work on 30 July 1993, three days before the CTA departure.

The experiments of the laboratory production of chymotrypsin and trypsin started under the guidance of Prof. Nguyen Dinh Huyen, HoChiMinh City University, (3.7.3) and with suggestions of the CTA. The CTA discussed with Prof. Huyen the arrangement of the experiments very thoroughly.

3.4.2 Quality Control Laboratory

Three rooms of the quality control laboratory were set up before the CTA arrival to HoChiMinh City. The first , or the main room, the physical room and the microbiological room. Not sufficient taps and sockets in the rooms. An air conditioner only in the physical room. No fan in the main laboratory room.

It seems that the quality control laboratory does not belong to the Project and that it is an independent unit of the UNIPHA. Three employees of the laboratory, Mr. Lan, the laboratory chief, Mr. Pham Cao Thang, fellow in Cuba in 1992, and Mr. Phan Tan Hieu, all pharmacists, are not the personnel of the Project.

A quality control laboratory was not anticipated by the Project Document because it was arranged that the existing quality control laboratory of the Pharmaceutical Factory "2 Sep.", including the microbiological laboratory, will be used. The Project has no more any connection with the Factory "2 Sep." and

a separate quality control laboratory is needed. The problem is that a complete equipment for that laboratory was not possible to purchase by the Project because no more funds were available. A few specialized apparatus were supplied from abroad, a spectrophotometer, a multidosimat, and a Karl Fischer apparatus as well as an analytical balance, a pH-meter and a simple microscope. There are no sufficient glassware and quality control chemicals. Especially the microbiological laboratory could not be equipped for an efficient work.

The quality control analysis of enzymes activity are possible to perform in that laboratory. No microbiological tests of the Project products, pancreatin and others, can be done. That is a serious problem because the microbiological purity is a condition of the quality of the products of the Project. One of the possible solutions is to arrange the microbiological examinations in an existing microbiological laboratory of a pharmaceutical factory or maybe in the State Drug Quality Control Institute in HoChiMinh City.

The Quality Control Expert (QCE)(3.7.2) is expected to introduce up-to-date analytical methods of the pancreatin enzymes, protease, amylase and lipase, then chymotrypsin and trypsin, and dry bile, during the trial runs of the Project pilot plant.

3.5 Final List of Equipment

The final list of Equipment of the Project DP/VIE/86/016 of June 1993 is enclosed as Annex 5.12.

3.6 Raw Materials, Chemicals and Accessories of the Project Production

Mr. Dao, the Chief of the Project Pilot Plant, and the CTA prepared lists of raw materials, chemicals and some accessories for the Project. One list was made for raw materials, chemicals and yields for one and ten batches as well as for 100 kg of raw materials used (Annex 5.13), another one for chemicals and accessories for the Project production that have to be supplied by UNIDO (Annex 5.14) and the third one for the chemicals and accessories that have to be provided by the UNIPHA (Annex 5.15).

The UNIDO local purchase for the above (Annex 5.14) was authorized just before the CTA departure from Vietnam. Allotments

for Local Expenditures 1993 of US$ 1,500 were authorized by UNIDO at the same time, with the assistance of Mr. Tiep, UNDP Hanoi (Annex 5.16). Because of shortage of the UNIPHA funds the CTA advised that the amount ought to be used primarily for the purchase of chemicals and accessories quoted here (Annex 5.15)

3.6.1 Some Pilot Plant Accessories to be Purchased Locally by the UNIPHA

Before the start of the pilot plant production a local purchase of several accessories (Annex 5.15, No. 16 to 20)(3.6) is a condition and that is expected to be done by the Vietnamese side of the Project. It was quoted in all the CTA previous reports.

- Trays for pancreas and other raw materials from the slaughterhouse are an urgent purchase. It is the last moment to do it because the production will start soon. The trays are needed for collecting of pancreas in the slaughterhouse, for the transportation and storage in the freezers at the Project site.
- In the case that only a few kilos of pancreas or other raw materials from the slaughterhouse is needed transportation in the Project car is more reasonable, using the 20 lit heat insulated weekend food boxes than driving in the eight tons refrigerated truck. Such boxes are expected to be purchased soon as well. They must be cheap and available at the local market.
- Cans for bile are needed for collecting fresh bile on the slaughterhouse, for the transportation and storage in the cold room at the Project site. It is high time to purchase them.
- A balance of 150 kg is necessary for weighing raw materials (primarily pancreas) and chemicals for the pilot plant production batches.

3.6.2 Enzymes Purchased from Serva Co.

The enzyme samples for the examination of the activity of the Project products were purchased from the Serva Co. for the first time in the middle of 1992 (Annex 5.17), Catalogue No. 31439, 17160, 37260, 27960, 13418, and 31820. They must be maintained at +4℃ and were shipped at the environment temperature and kept at the same temperature for months. The environment

temperature in HoChiMinh City is approximately 30℃. In May 1993 the CTA arranged that the enzyme samples be kept in a refrigerator, but their activities must be reduced. The second purchase was done in the middle of July 1993 and the enzyme samples spent ten days in the Hanoi Airport store-house at the temperature of approximately 40℃. The CTA informed UNIDO in Hanoi about that in written (Annex 5.18). The problem was that the enzyme samples were sent to Hanoi and not directly to HoChiMinh City and that the samples could not be taken from the Airport store-house earlier. Reaching HoChiMinh City the enzymes samples were placed in a refrigerator. Obviously, their activities were in the meantime reduced as well.

Moreover, these enzyme samples were not the same as recommended for purchase by the CTA in his Report of 29 December 1991, p.91, (Annex 5.19). The CTA realized that only after the discussion with Mrs. Pavelić, the Project Quality Control Expert (QCE)(3.7.2).

3.6.3 Quality Control Chemicals

A part of the quality control chemicals from the CTA Report of 29 Decembar 1991 (Annex 5.19), that were expected to be supplied, were reduced or replaced by someone in UNIDO Vienna to less corresponding ones. Paricularly the enzyme standards quoted in the above Report were substituted for enzymes of insufficiently precise activities (Annex 5.17)(3.6.2). The following numbers of the CTA List of 1991 (Annex 5.19) were omitted: 1 to 6,8,14,15, and 32.

The CTA would like to change and improve the third purchase of the enzymes, after the first two from the Serva Co. in the middle of 1992 and in July 1993. The items from the existing quotation (Annex 5.17) should be replaced by actual enzyme standards.

After several discussions with the QCE of the Project (3.7.2) the CTA accepted her proposal to purchase a limited and reduced number of items of enzyme standards less than in the CTA List of 1991 (Annex 5.19) and include a few other quality control chemicals, glassware and accessories (Annex 5.20). The CTA would prefer to carry with him for his next field mission a parcel with the enzyme standards, which must be very

small. In such a way any loss of the activities of these enzymes would be avoided.

3.7 Project Experts

By the end of May 1993 Mr. Tran Tuu, the NPD, accepted the suggestion of Dr. Meixner, the UCD Hanoi, and decided to cancel the 1.5 m/m mission of the Industrial Pharmacist and reduce the QCE's mission from two to one month. The remaining funds were used for new subcontracts with the DICI and Prof. Viet.

3.7.1 Mission of the Expert Plant Engineer

The PTE mission started at the same time as of the CTA and was completed two months later, beginning of July 1993. The former PTE Mr. J. Fryda was replaced by Mr. U. Strenger who prepared in August 1992 the Second Opinion Report.
Mr. Strenger made his Status Report on 2 July 1993 on the day of completion of the field mission. Copies of the Report were handed over to Dr. Csizer and sent to UNIDO Hanoi.
After return home Mr. Strenger collected information in Sweden about six lacking process control items. It was not possible to purchase them because of the U.S.A. embargo. Mr. Strenger reported about that to UNIDO, Vienna, with two facsimiles on 14 and 15 July 1993.

3.7.2 Quality Control Expert

After discussing the Curriculum Vitae of the five QCE from the UNIDO Roster the Vietnamese National Authorities selected Mrs. B. Pavelić, employee of the National Institute of Medicines (State Drug Quality Control Institute) in Zagreb, Croatia.
The start of Mrs. Pavelić's mission was primarily arranged on 2 July 1993. The CTA prepared her Four-Week Work Programme enclosed as Annex 5.21. Because of repeated delay caused by the Bason, the lack of six process control items, power and water supply, setting up of the Project laboratories and other, the fielding of Mrs. Pavelić was postponed, first to 15 July, second to 15 August and finally to the completion of the installation, commissioning and the first trial runs in the Autumn 1993. That is an agvantage because the QCE would be able to check and test the Project products, pancreatin, dry bile, chymotrypsin and trypsin, obtained in the first batches of the pilot plant processing, including

enzymes activity of the products. A close cooperation between the QCE and the CTA is necessary for the success of the Project implementation. During the CTA debriefing in Vienna, Dr. Csizer accepted the simultaneous fielding of the QCE and the CTA and made adequate arrangements.

After return to Zagreb the CTA met Mrs. Pavelić several times in the course of August and September 1993 and discussed the expected QCE mission. Mrs.Pavelić commented the QCE Work Programme (Annex 5.21) that is too short a time to fulfil all quoted in the Programme. She estimated that it is possible to complete approximately a half of the Programme only. The most important is the introduction of the up-to-date quality control methods of pancreatin including enzymes protease, amylase and lipase, then chymotrypsin and trypsin using standard enzyme preparations with different dilutions. A training course for the local personnel should be delivered. Quality control of the final products of the Project trial runs and preparation of everyday quality control protocols for each analysed substance is to be included. It is a pity that the QCE mission was two times reduced, first from four to two months and after that from two to one month only.That is actually too short a time for any serious introduction and arrangement of the quality assurance of the Project. It would be very useful for the success of the Project to expand the QCE mission to two months.

The CTA also discussed with Mrs. Pavelić the requirements of the quality control apparatus, glassware, chemicals and accessories,as quoted in paragraph 3.6.3.

3.7.3 National Consultant

During his field mission the CTA discussed many times with the NPD and the Project staff how to solve point six of his Terms of Reference about the sustained development of the Project in the future and after the completion of the Project activities.

The conclusion was to engage Prof. Nguyen Dinh Huyen, biochemist, Dean of the Faculty of Biology of the HoChiMinh City University, as biochemical adviser.

The CTA recommended the same in all his reports including the last one of 29 December 1991. Prof. Huyen was involved in the Project from the very beginning and even before the start of the Project

activities. He was one of the creators of the first version of the Project Document in 1987. Prof. Huyen guided the biochemical course for the Project fellows in March and April 1991 and with his assistance in his laboratory the CTA guided the biochemical course for the Project fellows in November 1991.

Prof. Huyen elaborated many methods and processes for obtaining different bioactive substances from domestic sea animals and plants Some of them could be introduced as the new products in the future and improve the Project economy. To mention only bromelin, an enzyme from pineapple, and chitin from crustacean shells. Bromelin can be used for Vietnamese fish sauce fermentation on industrial scale. Chitin and chitosan can be found in many biochemical catalogues, e.g. Serva Co. Catalogue 1991/92, p.57, No. 16620 and 16628 (Annex 5.22).Chitosan could be used for tablets coating and for some other purposes as well. In addition, processing of chitin would reduce pollution of environment because crabs and other crustacea are widely exported from Vietnam and their shells accumulate on the coast.

The UNIPHA has had no available funds to cover the contract with Prof. Huyen.

During his stay in HoChiMinh City in the middle of July 1993 Mr. N.K. Tiep, the Programme Officer of the Project at UNIDO Hanoi, advised the engagement of Prof. Huyen as a National Consultant and suggested how to manage the UNIDO/UNDP funds for his fee. The CTA prepared the Job Desription for the National Consultant that is enclosed as Annex 5.23. Prof. Huyen's UNIDO Personal History form filled in is enclosed as well as Annex 5.24.

Prof. Huyen is engaged as Dean and the University Professor but he agreed to work everyday with the Project and include his coworkers from the University in the Project activities.

Prof. Huyen will guide and supervise all experiments and the Projec production on the laboratory and pilot plant scale during the CTA's stay in HoChiMinh City as well as the CTA's absence throughout the whole lifetime of the Project. Once good yields and activities of the Project products achieved, he will try to improve and develc the Project production processes including new technologies. Later on, Prof. Huyen will try to introduce his new products and processe from the slaughterhouse raw materials as well as from sea animals and plants using local natural sources.

Prof. Huyen started to work with the Project at the end of July 1993 with his two coworkers, Prof. Dong Thi Thanh Thu and Prof. Van Duc Chin, guiding the experiments in the biochemical laboratory (3.4.1). The CTA had long discussions with Prof. Huyen especially about arrangement of the laboratory scale production of chymotrypsin and trypsin.

After many repeated postponements of the installation of the Project equipment it remained only one to two months to the CTA to train the Project personnel in the regular production. In the Project Work Plan one and a half year were envisaged to do it. Prof. Huyen is expected to ensure that the Project production will not be stopped after a few experimental batches.

The CTA would like to point out that Prof. Huyen's involvement in the Project is the necessity for the proper completion of the Project activities, as well as for the successful continuation of the Project in the future after its termination.

The main achievement of the CTA mission was the introduction to the Project the post of a National Consultant and appointment of Prof. Nguyen Dinh Huyen. The initiatives, ideas and production methods of local specialists are what have to be promoted.

3.7.3.1 Prof. Huyen's Coworkers

Prof. Huyen's team will have more than two coworkers. That can be only an advantage and a benefit for the Project efficiency (Annex 5.11, part 2). It has not to be forgotten that there is a shortage of the Project personnel. Maybe Prof. Huyen's students could help as technicians and workers during the pilot plant trial runs and the regular production. The UNIPHA funds are very limited and that could make difficult payments of a larger personnel. It is advisable to facilitate the entrance of Prof. Huyen's coworkers to the Project site and not to limit the number of the team members to two person only.

3.8 Postponement of the Closing Tripartite Review Meeting

In May 1993 the Tripartite Review (TPR) Meeting was arranged for the middle of July 1993, earlier than it was planned. The Project pilot plant and the laboratories were not completed in time and so the TPR Meeting was adjourned for the end of September 1993 (Annex

5.25). Later on it was evaluated by the NPD and the CTA that a new term of the Closing TPR Meeting, after September 1993, could be needed.

3.9 Possible Cooperation with Gedeon Richter Co., Hungary

Mr.Tran Tuu informed the CTA in HoChiMinh City that he would like to visit the Gedeon Richter Co. in Budapest, Hungary, by the middle of September 1993 and try to establish a ccoperation with the Company. Mr. Tran Tuu proposed that the CTA accompany him. During the CTA debriefing in Vienna Dr. Csizer accepted it and advised Mr. Tran Tuu to announce the visit in written to Mr. I. Dozsa, the Gedeon Richter Co. Director for Technical Cooperation. Dr. Csizer suggested that Mr. Tran Tuu ask UNIDO Vienna for the CTA official participation. The CTA informed Mr. Tran Tuu about all that on 12 August 1993 by facsimile (Annex 5.26).

3.10 Communication and Cooperation

To facilitate communication and make it more efficient in the future the CTA would like to draw attention to the following matter.

3.10.1 Interpreter of the Project

Mr. Tran Ngoc An, the interpreter from the beginning of the Project lifetime, was very efficient and useful during all CTA's previous missions. During this last CTA's mission Mr. An was contracted with the UNIPHA only half time and that caused substantial problems. Usually Mr. An started to work at 9 a.m., sometimes only in the afternoon and a few days he was absent. At the same time Mr. An was engaged with the other UNIPHA projects and must translate several documents with no relation to the Project.
The CTA started to work at 8 a.m. and had problems with communication with the Vietnamese side of the Project before the arrival of Mr. An. Sometimes Prof. Hoang An, the Main Coordinator of the Project, whose English was good tried to interprete during the meetings, mainly with the NPD. That was not satisfactory because Prof. Hoang An participated in the discussion during meetins. It was very difficult for the same person to discuss about a problem and be interpreter at the same time. It happened sometimes that the CTA was without an acceptable translation and could not participate in a meeting completely.

The PTE and the CTA were often sitting in the Project car with the NPD in the morning during the drive to the Project site. Mr. An, the interpreter, was not present and it happened only sometimes that somebody who understands English was in the car. Many opportunities to discuss with the NPD were lost.
Mr. An, the interpreter, was seldom at the disposal of the CTA, opposite to the previous missions. For the CTA it meant wasting of time and troubles. Nevertheless, Mr. An was of substantial help to the PTE and the CTA when he was present at the Project site.
A Letter of Appreciation was prepared to Mr. Tran Ngoc An by Dr. Csizer, the Project BSC, UNIDO Vienna, on the CTA's proposal (Annex 5.27).

3.10.2 Work Time of the PTE and the CTA

When the PTE and the CTA arrived to HoChiMinh City it was asked by the NPD verbally and on 12 May 1993 even in written (Annex 5.28) to observe the work time of the Project personnel from 8.00 to 11.30 a.m. and 1.00 to 4.30 p.m. Sometimes the experts and the NPD arrived by the Project car at 8.00 and nobody of the Project personnel was there, the office door locked, and somebody must be looked for to open it. The NPD has usually first meetings with the Foemulation Unit personnel. It would be more efficient if the PTE and the CTA started to work when all the Project personnel were on the site.
It is understandable that during the installation, and especially for commissioning and trial runs of the Project pilot plant all the personnel, including the management and the international experts, are at the Project site during full work time or longer if necessary. On the contrary, the presence of the CTA and other experts without the interpreter and the local personnel was waste of time.

3.10.3 Photocopying

On the Project site there was no photocopying machine. The machine in the main UNIPHA Office was far away and very often out of order or Mr. Tran Tuu was not there to permit its usage. At the UNDP Office it was possible to make only a few photocopies. The photocopy service in the street was only available and that was very inconvenient.

3.10.4 Project Car

Besides the Project minibus Toyota, the UNIPHA possessed two or three cars more. Mr. Nguyen Chanh Ut was the only driver employed by the UNIPHA who drove preferably the Project minibus. That was a reason for some misunderstandings and troubles during the two previous CTA missions and during his mission in 1993 as well.
One must have in mind that the Project car should serve the Project especially during the missions of the international experts.
The Project refrigerated truck was not ready and the Project minibus must be used for transportation of pancreas from the Vissan slaughterhouse for the laboratory experiments and production.
It is disturbing if the NPD needs the car, or better to say the driver, at the same time.
The NPD decision to manage the Project car (Annex 5.28) caused that the CTA finally asked him in a letter (Annex 5.29) to remove the troubles with the car.
Many unpleasant things could be avoided if the UNIPHA employs another driver to be at the disposal of the NPD during the CTA's and international expert missions.

3.10.5 Relations with UNDP and UNIDO in Hanoi

According to the new regulations of the UNIDO Hanoi the direct communication from the UNDP Liaison Office in HoChiMinh City with UNIDO in Vienna was not possible. All facsimiles and messages to Vienna must be first sent to the UNIDO Office in Hanoi. Direct phone calls from HoChiMinh City to Vienna were not possible as well. The CTA facsimiles many times reached UNIDO Vienna with delay and a few of them never. It happened that the UCD and the Programme Officer in Hanoi asked the experts and the CTA for changes in their letters and massages to Vienna. Such interferences can never be useful for any project and for the whole UNDP and UNIDO system. A direct communication between the CTA and project experts with the BSO is always preferable for the success of a project. That has been practiced for years.
An UCD has many projects and cannot enter deeply into problems of a definite project. He can only have a general view of all the projects supervised by him. It is better to leave that the CTA and the project experts manage a project without insisting on a solution that may seem to the UCD as best. It is usually more

successful for a project if the UCD does not interfere too much. Dr. Meixner's, the UCD Hanoi, efforts to help to the Project DP/VIE/86/016 have to be appreciated. However, his pressure for certain subcontracts were not always most successful. For instance, Prof. Viet's engagement was not the best choice (3.3.3). It would be better to let the CTA to find a solution for the installation of the laboratory equipment.
After Dr. Meixner's departure from Vietnam in July 1993 Mr. N.K. Tiep, The Project Programme Officer, UNIDO in Hanoi, advised how to introduce the post of a National Consultant of the Project and appoint Prof. Huyen. Mr. Tiep also suggested how to realize the UNIDO Allotments for Local Expenditures 1993 of US$ 1,500.

3.10.6 Preparation of the Mission Report

The CTA could not elaborate and even not to design his Mission Report during the stay in HoChiMinh City because of too many things that had to be completed in the last days there. For instance: the supervision of the pilot plant installation a few times a day, the biochemical laboratory arrangement and start of the experimental work, the quality control laboratory arrangement, Prof. Viet's team supervision, and especially exhausting meetings, often two and three times per day. Only the Report on Slaughterhouses was drafted by the CTA before his departure from Vietnam.

4 RECOMMENDATIONS AND GENERAL CONSIDERATION

4.1 Recommendations

The CTA tried to arrange the recommendations according to the priority order.

4.1.1 Maintenance of the Project

The Project has no more relations with the Pharmaceutical Factory "2 Sep.". The UNIPHA has no sufficien funds to manage the Project production (3.2) and not enough personnel (3.2.1). The Project is to develop a new type of the pharmaceutical production, it is on a pilot plant scale, and cannot be economicaly viable. In addition, quantities of the products are expected to be smaller than planned because of lower amount of the slaughterhouse raw materials than it was envisaged.
It is recommended to ask the Committee for Science and Technology in HoChiMinh City for a support and assistance with the development funds of the Vietnamese Government.
An additional possibility is to use a part of the Project equipment for the research and development work at the HoChiMinh City University on a contract base.
Anyway, processing of new products from abattoir raw materials, improvement of the existing Project processes and introduction of new technologies as well as introduction of new products from domestic plants and sea animals, obtained by methods of Prof.Huyen (3.7.3), will contribute to a better economy of the Project in future.

4.1.2 National Consultant of the Project

Prof. Nguyen Dinh Huyen's engagement as the National Consultant was the necessity for the successful continuation of the Project activities after its termination (3.7.3). He will care that the Project production does not stop after a few experimental batches. The CTA recommends to employ Prof. Huyen permanently by the UNIPHA after the lifetime of the Project as well.

4.1.2.1 Coworkers of Prof. Huyen

It is advisable that Prof. Huyen coworkers help in the shortage of the UNIPHA personnel of the Project. It is strongly recommended not

to limit the number of Prof. Huyen's coworkers. Their access to the Project site should be facilitated (3.7.3.1).

4.1.3 Raw Materials from Slaughterhouse

4.1.3.1 Employment of a Veterinarian

A condition for the successful collection of slaughterhouse by-products for the Project is to employ a veterinarian full time, or at least part time one of the Vissan veterinarians to supervise the Project workers at the abattoir and to ensure the proper collecting, trimming, freezing, and storage of the pancreas, bile and other by-products (3.1).

4.1.3.2 Collection of Pancreas and Bile

Pig pancreas have to be collected with hands, and the cattle pancreas with a knife. Collecting with a knife make sure that the entire cattle pancreas is taken out (3.1).
Proper collecting of fresh bile, filtration through a gauze, preservation with formalin, and storage must be respected as well.

4.1.3.2.1 Project Workers at the Slaughterhouse

Two to four persons are sufficient for the collection of pancreas and bile. More experienced workers are advisable (3.1).

4.1.3.2.2 Quick Freezing of Pancreas

The collected pancreas have to be frozen in a very short time, not later than one hour after slaughter, in the contact freezer at $-45^{\circ}C$ in the Vissan and after that removed to the freezin store at $-20^{\circ}C$. Such an arrangement was done two years ago with the Vissan Management. It is not acceptable to put the fresh unfrozen pancreas at $-20^{\circ}C$, or even worse at $-16^{\circ}C$ as it was done when the CTA was in the Vissan (3.1).

4.1.3.3 Project Waste Pancreas Processing

It is recommended to arrange with the Vissan the processing of the Project waste pancreas together with the Vissan solid waste (3.1.2) Thus the environment pollution will be avoided.

4.1.4 Existing Project Production

The CTA has to arrange the pilot plant production of the products selected at the start of the Project, pancreatin, dry bile, chymotrypsin and trypsin , with the assistance of Prof. Huyen.

Because of a very limited amount of cattle pancreas, and because of rather tiring purification, the CTA recommends for the beginning production of only alpha-chymotrypsin technical grade, with 20% trypsin, and not the higher purified alpha-chymotrypsin and trypsin.
As for pancreatin, the CTA recommends its production only by one method. Pancreas has to be extracted and not only dried. The item 01.12, stainless steel jacketed vessel of 50 lit with stirrer, ordered from the Bason later on (3.3.1.1) for the production of dried pancreas can be used for some other product processing, maybe. The amount of the pig pancreas is limited as well, a reason more not to produce dried pancreas ("insoluble pancreatin") that would be used only for a problematic drug formulation (3.3.1.1). From the economic point of view dry bile is very attractive for the Project. There is demand on the world market for US$ 70 to 80 per kg. A single chemical, 0.10 kg formalin pure, is required for the processing of 100 kg of cattle bile. Cooled water and steam are needed. The problem is the very limited rate of slaughter of cattle in the Vissan. Approximately two batches of the regular Project production (of 35 kg) can be done per a week. About 300 kg dry bile per year can be obtained with the current rate of slaughter of about 50 heads of cattle daily. That is a too small quantity for possible sale of dry bile.

4.1.5 Mission of the Quality Control Expert

The CTA recommends the expansion of the QCE mission to two months using the Equipment Budget Line 42.00, if possible (3.7.2).
The QCE mission was reduced twice and at last remained one instead of four months. Only the most necessary quality control of the final products is possible to introduce in one month time. The aim of the Project is to realize production of pharmaceutical raw materials from slaughterhouse by-products. An efficient quality control is required not only for the final products, the bioactive substances and formulated drugs, but also the in-process control at different production steps and the quality control of chemicals and raw materials, the slaughterhouse by-products. The GMP includes an up-to-date quality control, as a matter of fact a quality assurance. In two months period a better qualiyt assurance is possible to be introduced, including the in-process control and the raw materials quality control.

4.1.5.1 Microbiological Quality Control

It is advisable to arrange the microbiological control in an existing microbiological laboratory of a pharmaceutical factory or in the State Drug Qualiyt Control Institute (3.4.2). The microbiological laboratory of the Project cannot be equipped because such a laboratory was not envisaged in the Project Document. There are no funds available. From the very beginning the Project was a part of the Pharmaceutical Factory "2 Sep." and the existing microbiological laboratory of the Factory would have been used for the Project needs which is no more possible (3.2).

4.1.6 Lack of the Six Process Control Items

An urgent purchase of these items (3.3.2.3 and 3.3.2.3.1) is strongly recommended. The DICI does not like to start with the installation of the process control instruments before receiving all the items needed.
Their lack can make a new unexpected and unpleasant delay of the installation of the pilot plant and the commissioning and trial runs as well.
In the case that the six items are not possible to be supplied from Great Britain,as a possibility remains to get in touch with the UNIS-COMDIS Co. in Prague through Mr. J. Fryda, the former PTE of the Project. It must be pointed out that the purchase of these six items is very urgent and at present critical for the Project implementation.

4.1.7 Explosion Proof Premises

The CTA strongly supports and recommends that the DICI alone, or with the Bason, has to engage an Occupational Safety Institute in HoChiMinh City to check as soon as possible conditions of the electrical installations for safety in the explosion hazard rooms of the Project pilot plant (3.3.1 and 3.3.2.1). It must be done in the pancreatin production and acetone recuparation premises. Acetone is one of the most inflammable and explosive organic solvents.

4.1.8 Subcontractors Obligations

4.1.8.1 Bason Navy Shipyard, HoChiMinh City

It is expected that the Bason fulfil all his obligations without any more delay, with special emphasis to the electrical installations in the explosion hazard rooms (4.1.7). Supply of the Diesel generator, item 07.01, ought to be done, the refrigerated truck, item 05.02, the water cooling unit, item 02.03, and the cold room, item 05.03, meet the requirements (3.3.1), an independent quality control institution perform the chemical analysis of the stainless steel used for the manufacture of items, and all the other obligations quoted in paragraph 3.3.1 be completed correctly.

4.1.8.2 Institute of Architectural Design and Constructions, HoChiMinh City

Fulfilment of all the obligations of the Institute quoted in paragraph 3.3.4 is expected without any more delay. Especially to point out of the construction of a simple shelter on the roof, and completion of the biochemical and the quality control laboratories.

4.1.8.3 Design Institute of Chemical Industry, Hanoi

The DICI has three subcontracts. According to the first one the DICI is the main supervisor of the Bason work and is responsible that all obligations are done in good quality and with no more delay (3.3.2.1). Special attention must be paid to the electrical installations in the premises where acetone vapours are expected (4.1.7). The DICI is to speed up the preparation of all Bason certificates (3.3.2.1)
As for the second subcontract the DICI is expected to complete the installation of all foreign equipment soon (3.3.2.2).
The third DICI subcontract is for the installation of the process control instruments (3.3.2.3). It is recommended to the DICI to do that in a shortest possible time after receiving the six lacking items (4.1.6).

4.1.8.4 Prof. Pham Hung Viet, Hanoi

It is recommended very strongly to request from Prof. Viet to repair the refrigerated centrifuge immediately and to replace the

lacking part of the Metrohm multidosimat (3.3.3). A postponement of the final payment to Prof. Viet is recommended until it is sure that all apparatus installed by his team function correctly.

4.1.8.5 Laboratories

4.1.8.5.1 Biochemical Laboratory

It is suggested to install in the biochemical laboratory (3.4.1) an efficient exhaust fan in the hot stage, to remove a main power switch box from the laboratory, and check the water boiler (item 06.05) in the laboratory. If needed to provide an additional heat insulation or a partition wall. That is the DICI obligation as well.

4.1.8.5.2 Quality Control Laboratory

As for the quality control laboratory it is recommended to complete the water supply with sufficient taps (not less than six additional) as well as the hot stage with an efficient exhaust fan, electrical socket and a tap (3.4.2).

4.1.9 Additional Purchase of Equipment, Chemicals and Accessories

4.1.9.1 Additional Equipment of the Project

Many discussions were held in the last days of the CTA stay in HoChiMinh City about a possibility of supply of some new equipment for the Project. The surplus of US$ 31,000 from the Bason contract roused that. A Priority List of items was prepared as well (Annex 5.8).

After his return home the CTA collected prices of items in question mainly from the Hospitalija Co. in Zagreb. It was expected to buy a few laboratory equipment, that were quoted in the Priority List, using the remaining amount after purchase of a freeze drier or a tablet enteric coating machine. The laboratory items were more expensive than expected during the discussions in HoChiMinh City. These items are very necessary for the completion of the Project. After discussions with the QCE in Zagreb, the CTA suggests the purchase of a new item, a powerful disperser, such as the Polytron disperser, Kinematica AG. The disperser is needed for the preparation of a stable olive oil emulsion as the substrate in the lipase determination. The freeze drier is very expensive, it cost: US$ 24,819, and cannot be used for the pilot plant production but

for laboratory experiments because only the smallest possible size can be purchased for the amount. The tablet enteric coating machine is very expensive as well, US$ 26,000, and can be a part of the Tableting Department in the Formulation Unit of the BIOPHA and, among others, used for the formulation of the pancreatin enteric coated tablets. That item was not quoted in any of the Project Documents.

The CTA would like to recommend a New Priority List of additional equipment for the Project enclosed as Annex 5.30. Several invoices and leaflets are enclosed as well (Annex 5.31 to 5.40). First six items are a condition for the proper laboratory work, the freeze drier represents a higher level of the laboratory experiments, and the tablet enteric coating machine is primarily for a drug formulation unit.

In the case that the surplus of US$ 31,000 will not be realized, the CTA recommends use of the existing Project funds, Budget Line 42.00, respecting the New Priority List (Annex 5.29). It is up to the BSO which amount could be used for that.

4.1.9.2 Quality Control Chemicals and Accessories

It is recommended to UNIDO the purchase of enzyme standards, a few quality control chemicals, glassware and accessories according to the List prepared by the QCE and the CTA (Annex 5.20). Do not repeat the purchase of the enzymes that are not standard preparations, as it was done twice, in 1992 and in July 1993 (3.6.2, 3.6.3 and 3.7.2).

4.1.9.3 Local Purchase by the UNIPHA of Chemicals and Pilot Plant Accessories

It is strongly recommended to the UNIPHA to purchase the quoted in the enclosed List (Annex 5.15). It is the last moment to do it because production will start soon (3.6 and 3.6.1). The first 15 items (Annex 5.15) are chemicals necessary for the regular production of the first ten batches. The items 16 to 20 are accessories that are a condition for the start of the pilot plant production (3.6.1).

The Allotments for Local Expenditures 1993 of US$ 1,500 (Annex 5.16) is advised to be used primarily for the purchase of items in the List (Annex 5.15). Other chemicals and accessories needed for the laboratories and for the pilot plant ought to be supplied using the remainding amount of the US$ 1,500.

4.1.10 Communication

4.1.10.1. Interpreter of the Project

It is strongly recommended to employ Mr. Tran Ngoc An, the Project interpreter, permanently and not only half time as it was during this CTA mission (3.10.1). This is a condition for any successful communication and cooperation in the next mission of the QCE and the CTA.

4.1.10.2 Project Car

It is strongly recommended to employ a second driver by the UNIPHA during the next mission of the QCE and the CTA and thus avoid many unpleasant things that happened in this CTA's mission (3.10.4). One driver could be at the disposal of the NPD and the other to drive the Project car. This is a condition as well to avoid that the international experts waste time.

4.1.10.3 Work Time of the International Experts

It is more efficient if the international experts start work when all the Project personnel are on the site and not earlier (3.10.2). Such an arrangement is recommended to avoid further waste of the experts time.

4.1.10.4 Photocopying

An arrangement is recommended for an efficient photocopying at the Project site to avoid an additional time wasting of the international experts and the local Project personnel (3.10.3). Maybe to move the existing photocopying machine from the UNIPHA Main Office to the Project site.

4.1.10.5 Relations with UNDP and UNIDO in Hanoi

A direct communication from the UNDP Liaison Office in HoChiMinh City between the international experts and the BSO in Vienna is suggested to facilitate the Project fulfilment. That was practiced for years (3.10.5).
It is better that the UCD does not interfere deeply into the problems of a project and leave them to the CTA and the international experts. That is usually more successful for a project because the UCD manages many projects while the project experts only one (3.10.5).

4.1.11 New Products and New Technologies of the Project

4.1.11.1 New Products from Slaughterhouse Raw Materials

It was discussed many times how to improve the Project economy. A few new products from abattoir by-products were advised by the CTA in all his previous reports. No new product was accepted by the Tripartite Review Meeting in July 1992.

The peptone and thyroid gland powder production could be arranged in the existing Project equipment and included as new products without any capital investment. The current slaughter in the Vissan limits the production capacities of peptone and thyroid powder. That is not important for peptone because the requirement of peptone in Vietnam amounts only to 100 kg per year. Peptone is produced from pig stomachs and for 100 kg of peptone 2,700 slaughtered pigs is needed, which is acceptable. If batches of 35 kg raw materials are used, four batches per month or fifty batches annually would meet the needs. (One pig stomach is about 650 g.)

With the thyroid gland powder production is different. According to the calculations from the CTA's Report of 29 December 1991 and taking into account the actual slaughter of 50 heads of cattle per day in the Vissan batches of 10 kg of cattle thyroid glands are preferable. It will mean 28 batches per year or two to three batches per month.Usually 0.120 kg to 0.145 kg of dry powder is obtained from one kg of thyroids which will amount to 33.5 kg to 40 kg of thyroid powder yearly. The thyroid powder processing was presented very successfully in a block diagram in Strenger's Second Opinion Report of August 1992. It is not advisable to defat the glands with petroleum ether as performed in Cuba. Petroleum ether is a very inflammable solvent, containing several different hydrocarbons that are not always the same. Boiling and flash points of various pertoleum ethers are different. Safer and more convenient is acetone for the extraction of fat from thyroid glands. The method with acetone is well-known from the professional papers. In addition, acetone is used for the Project pancreatin processing. For the thyroid powder processing only five to ten percent of the existing acetone consumption by the Project is required.

4.1.11.2 Improvements and New Technologies of the Existing Production

Once acceptable yields and activities of the Project products are achieved, an improvement and development of the production processes are expected, maybe using the ultrafiltration techniques and other new technologies. That should be one of the tasks of Prof. Huyen (3.7.3).

4.1.11.3 Substances of Local Natural Sources which are not Slaughterhouse By-Products

In the case that not sufficient abattoir by-products are available to fill the everyday batches of the Project pilot plant, new products can be obtained from the domestic sea animals and plants using the methods elaborated by Prof. Huyen (3.7.3).
The CTA discussed that during the debriefing in Vienna with Dr. Csizer, the BSO, and Dr. T. De Silva, the UNIDO Special Technical Adviser. Both accepted the above as reasonable and possible to be performed in the existing Project pilot plant equipment. As examples of the new possible products were mentioned: bromelin, papain, amylase and urease from plants, chitin from crab shells and others. The production equipment for all these substances are similar to the existing Project equipment. A thorough washing and cleaning of all equipment, piping and premises between two different production processes is necessary. The GMP requirements have to be fulfilled. A new production could be damaged or spoiled even by traces of raw materials, chemicals, semi products or products of a previous processing.

4.2 General Consideration

According to the Project Document signed in 1989 it was a development Project and an experimental production unit of the pharmaceutical raw materials, pancreatin, dry bile, chymotrypsin and trypsin, from the slaughterhouse by-products. The Project can serve as a model to develop technological capabilities for preparation of other products from natural sources and as the training facility for professional staff in modern biochemical separation techniques.

In the Project Work Plan signed in September 1990 a half of the Project lifetime of three years was envisaged for the experimental run of the pilot plant and laboratories and training of the personnel.

The local manufacture of a part of the Project equipment was delayed many times and all in all approximately for two years and the Project implementation was postponed for the same period of time. The delay was caused by the substitution in 1991 of the local manufacturer and the Bason Navy Shipyard was selected by the NPD instead of Rectere Co. The pilot plant and the laboratories installations were planned to be completed by the end of 1991 which has not been done so far. It is expected to be fulfilled in the last months of 1993. The biochemical laboratory was ready for work at the end of July 1993. For all that the PTE mission was prolonged and the QCE mission reduced from four to one month and the Industrial Pharmacist's mission cancelled. A too short mission of the QCE will cause that the proper quality assurance and the GMP of the Project will be hardly possible to reach. The Project turned mainly into the manufacture and installation of the equipment. Only one to two months will remain to the CTA to train the personnel in the Project production.

According to the current UNDP policy all projects have to be economically viable. That cannot be reached with a development project on a pilot plant scale as is the case with this Project. The aim of the Project is the introduction of a new type of pharmaceutical production in Vietnam. Usually a pilot plant scale is for development and cannot be economically viable. An industrial scale production is for making profit, and a larger scale production is more profitable.

The raw materials from the Vissan, the only operating abattoir of the international standard in HoChiMinh City, were not sufficient from the very beginning to meet the Project requirements. Plans to increase slaughter were not realized during the last three years.

The fall down of the value of US Dollar and the scantiness of the raw materials were the reasons that in early 1991 a few most expensive equipment items, from the CTA and the PTE List of 1990, were replaced by the cheaper and of less capacity ones. - A part of the remaining funds were used for the purchase by UNIDO of a transformer with the entire wiring and electrical installations for the Project. That was an obligation of the Vietnamese side but was done by UNIDO because of shortage of funds of the UNIPHA, the National Counterpart of the Project. - The cheaper equipment caused a simplification of the production technology of the chymotrypsin and trypsin and the production batches were reduced from 50 kg to 35 kg per day. For a better economy of the Project new products from the slaughterhouse sources were advised and looked for. The CTA suggested some during the last two years but none was accepted by the Tripartite Review Meeting in July 1992. The present slaughter rate in the Vissan cannot fill even the 35 kg daily batches.

To carry-out the objectives of the Project, to train the personnel in the regular production on a laboratory and pilot plant scale for a longer period, to improve the existing Project technologies, to introduce new products from other slaughterhouse raw materials as well as from various domestic plants and sea animals, including products obtained by his methods, Prof. Nguyen Dinh Huyen, HoChiMinh City University, an experienced biochemist, was appointed in August 1993 the National Consultant of the Project. Prof. Huyen was involved in the Project before it started and continued the activities during its whole lifetime. It is an advantage to engage Prof. Huyen for a longer period and after the termination of the Project. Prof. Huyen included his coworkers from the University in the Project activities. Among others they would help to the Project personnel, which is not sufficient, to run the production.

The UNIPHA was selected by the Vietnamese Government as the

National Counterpart of the Project. The UNIPHA was in charge of several pharmaceutical factories in HoChiMinh City. It had been arranged from the very beginning that the Project was a department of the Pharmaceutical Factory "2 Sep." and that the Factory facilities, including the Tableting Department, quality control laboratory, and the Factory personnel be used by the Project. In 1993 because of a new organization the UNIPHA has become an independent enterprise with no relations more to the pharmaceutical factories, including the Factory "2 Sep.", and has very limited funds. Consequently the Project has no connection more with the Factory "2 Sep.". It is crucial for the maintenance of the Project because of the shortage of the UNIPHA funds and of insufficiency of the personnel.

A solution is to look for a support by the development funds of the Vietnamese Government through the Committee for Science and Technology in HoChiMinh City. It is possible as well to make a contract with the HoChiMinh City University for the use of a part of the Project equipment in their research and development.

Annex 5.1

Terms of Reference of the Chief Technical Adviser (CTA), Technologist
DP/VIE/86/016/11-01

Duration: 3 m/m

Date required: Briefing at Vienna on 7 May 1993

Duty station: Ho Chi Minh City, Viet Nam

Purpose of project: Establishment of a production unit for manufacture of enzymes, hormones and other bioactive substances in UNIPHA from by-products (animal glands and tissues) from slaughterhouses of Ho Chi Minh City.

Duties: The CTA will be expected to carry out the following duties in close co-operation with the National Project Authorities; UNDP, Hanoi; local sub-contractors and with the plant engineer (Post 11-02):

1. Assess, review and give advice in organizing, managing and controlling the collection, storage and transportation of animal organs and tissues in compliance with international guidelines and standards and prepare a detailed report on this subject.

2. Assess, review progress of local sub-contracting services with BASON and DICI and give advice and assist in preparation of interim, draft final and final reports in order to avoid unnecessary delays and expedite timely payments for goods and services delivered.

3. Supervise, give advice and guidance in remodelling of the facilities and installation and commissioning of equipment in compliance with GMP and GLP. Particular emphasis should be given on quality assurance and quality control to ensure high quality products with high batch-to-batch consistency.

4. Supervise and assist equipment start up, give guidance in preparation of basic GMP documentation such as manufacturing and quality control process descriptions, standard operating procedures (SOPs), batch production records (BPRs), test records (TRs), product files, maintenance and operating manuals, etc.

5. Supervise and assist in trial production runs at laboratory and pilot scale and prepare a work plan for process and product improvement and development.

6. Give advice and guidance national project authorities for developing options for a sustained development of the project at its forthcoming phases.

7. Prepare a detailed report of his mission with his findings, recommendations and conclusions and a work programme for future developments.

8. He should also prepare in co-operation with the national project authorities and UNDP, Hanoi the draft terminal report of the project and any other documentation required in the terminal TPR meeting.

WORK PROGRAMME OF THE CTA PROF. OLEG SCEDROV

elaborated in accordance with the Terms of Reference given by Dr. Z. Csizer, UNIDO Backstopping Officer, on 7 May 1993 (enclosed).

The Terms of Reference and the Work Programme are hardly possible to fulfil.

7 May: Briefing in Vienna,
9 May to 1 Aug.: Mission in HoChiMinh City (12 weeks),
3 and 4 Aug.: Debriefing in Vienna.

The following numbers correspond to the Terms of Reference enclosed.

10 to 15 May 1993: (1) Visits to the "Vissan" slaughterhouse during the slaughter and by day. Check and advice the collection and trimming of the pig and cattle pancreas and bile. Meet Director of the Dpt. of Animal Health in Vietnam. Prepare a report about the point (1).
Check in the "Vissan" the possibility of drying the waste pancreas of the Project.
(2) Review the work done with the "Bason" and DICI and advice.
(3) Remodelling of the Project facilities and installation of the Project equipment.

15 to 17 May: Status Report of the CTA and PTE drafted and typed.

17 to 22 May: (1), (2), (3).

24 to 29 May: (1), (3), (4) Supervision and assistance in the installation of the Project equipment and setting in motion. Guide the preparation of basic GMP documents, such as manufacturing and quality control process description, batch and test records, product files, operating and maintanance manuals, etc.

31 May to 5 June: (3), (4), (5) Trial production runs at laboratory and pilot plant scale, assistance and supervision. Preparation a work plan for process and product development.

7 to 12 June: (3), (4), (5).

14 to 19 June: (3), (4), (5).

21 to 26 June: (3), (4), (5).

28 June to 3 July: (4), (5).

5 to 10 July: (6) Advice the Counterpart in formulation of options of the Project forthcoming phases.

12 to 17 July:	(6), (8) Join the Counterpart and UNDP Hanoi in the preparation of the draft Terminal Report and documents needed for the terminal Tripartite Review Meeting.
19 to 24 July:	(6), (7) Mission Report and a work programme for future development. (8).
26 to 31 July:	(7), (8).

1 week	MAY93 month	Status Report to UNIDO - Workplan No 1 PRIORITY

09 SUNDAY	PM: CTA arrival at SGN airport	
10 MONDAY	AM: meeting at project site PM: PTE arrival at SGN airport	NPD,NPC,Head of Unit(HOU), NTA
11 TUESDAY	AM: Meeting at Project site,CTA,PTE PM: CTA,PTE checking DICI drawings	NPD,NPC,DICI,HOU
12 WEDNESDAY	AM: PTE checking DICI, BASON drawings CTA meeting at project site PM: CTA,PTE inspecting project premises	- do -
13 THURSDAY	CTA,PTE checking imported equipment	- do -
14 FRIDAY	- do -	- do -
15 SATURDAY	AM: CTA,PTE checking imported equipment First comments CTA checking chemicals, glassware PM: CTA checking lab equipment PTE draft report	- do -
16 SUNDAY	Redaction of report	
17 MONDAY	*AM: CTA,PTE checking equipment constr. at BASON* *PM: PTE discussion with CTA and typing report*	*BASON,DICI,NPC*
18 TUESDAY	*AM: CTA visit to biochem.labs of HCM University.Sending report to UNDP* *PTE discussing installation with DICI* *PM: CTA checking QC lab.*	*Pr.Huyen,NPC, HOU,CivilEng.* *Head of lab(HOL)*
19 WEDNESDAY	*AM: CTA,PTE's visit to Drugs Control Sub-Institute* *PM: CTA checking Experimental Lab.*	*Deputy Dir. of SubInst.,HOU,HOL* *HOU*

2	MAY93
week	month

DICI subcontract - Time Schedule - Labs

No 1 PRIORITY

17 MONDAY	AM: CTA,PTE checking equipment constr. at BASON PM: PTE discussion with CTA and typing report	BASON,DICI,NPC
18 TUESDAY	AM: CTA visit to biochem.labs of HCM University. Sendingreport to UNDP PTE discussing installation with DICI PM: CTA checking QC lab.,project files PTE checking manuals foreign equip.	Pr.Huyen,NPC, HOU,CivilEng. Head of lab(HOL) HOU
19 WEDNESDAY	AM: CTA,PTE´s visit to Drugs Control Sub-Institute PM: CTA checking Experimental Lab. PTE checking DICI drawings	Deputy Dir. of SubInst.,HOU,HOL HOU
20 THURSDAY	AM: CTA,PTE weekly meeting PM: PTE checking manuals imp. equipment CTA checking manuals lab.equipment CTA PTE fax to UNDP Hanoi	NPC,DICI,BASON Civil Eng. HOU.HOL
21 FRIDAY	AM: PTE installing desk computer at work place. Reviewing time schedule PM: PTE discussion instal. works with maintenance engineer,process pharm. CTA visiting Dr veter. Chi	NPC Maintenance eng. Process pharm. HOU, NPC
22 SATURDAY	PTE discussion plan installation works	DICI,HOU,ME
23 SUNDAY	Free	
24 MONDAY	*PTE CTA checking equipment constr. at BASON.TORs for DICI subcontract*	*BASON,DICI, ME DICI*
25 TUESDAY	*Meeting UNIDO Country Director (expected)*	*NPD,NPC,DICI,BASON,HOU*
26 WEDNESDAY		

3	MAY93
week	Month

DICI and Prof. Viet subcontracts, work schedule for project finalization

No 1 PRIORITY

24 MONDAY	AM: CTA,PTE checking equipment constr. at BASON Meeting NPD at project site PM: Working with DICI	BASON,DICI,HOU, Interpreter NPD,NPC,HOU,AHOU Civ.eng,Interpr.
25 TUESDAY	AM: PTE checking equip. at BASON CTA meeting w. HOU PM: UCD,Sinclair,Tiep arrival at SGN airport.CTA,PTE meeting UCD and Mr Sinclair at hotel	BASON,DICI,NPC HOU
26 WEDNESDAY	AM: meeting at project site: CTA,PTE, UCD, Mr Sinclair, Mr Tiep,discuss. workplan, TORs PM: above participants,discussion TORs with subcontractors(DICI, BASON)	NPD,NPC,HOU,AHOU Civ.eng,NTA, Interpr. - do - ,DICI, BASON
27 THURSDAY	AM: PTE checking equipment constr. at BASON, helping BASON write invoice PTE,CTA drafting faxes w. findings to Vienna. PM: PTE meeting DICI project manager. CTA meeting w. UCD,NPD,NPC PTE, CTA discussing drafts w.UCD	- do -
28 FRIDAY	CTA, PTE at UNDP office,typing sending faxes	
29 SATURDAY	AM: CTA discuss. lab.equipm.subcontract and draft letter to UCD. Meeting PTE,DICI workplan, problem solving PM: CTA,NPC typing letter to UCD	
30 SUNDAY	Tiep departure to Hanoi UCD departure to Vientiane	
31 MONDAY	*AM: PTE redesign cooling unit w.DICI* *CTA,NPC,NPD meeting with prof.Huyen* *PM: CTA checking fine chemicals* *PTE - do -*	*NTA,HOU*
01 TUESDAY	*AM: PTE, DICI,BASON:specifications on cooling unit* *CTA meeting with NPD* *PM:*	

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4 week	JUNE Month	Move equip.store- Start works on roof- Electricity supply - Start DICI instal. No 1 PRIORITY

31 MONDAY May	AM:	PTE redesign cooling unit w.DICI CTA,NPC,NPD meeting with prof.Huyen CTA meeting w. NPD and DICI	NTA,HOU HOL,Storekeeper
	PM:	CTA checking finechemicals,instal. refrig. for fine chemicals PTE - do - CTA calculate chemicals needed for the start of pilot plant run. DICI start instal.	
01 TUESDAY	AM:	PTE, DICI,BASON:specifications on cooling unit. CTA w. Dao prepare for the regular production a list of chemicals balance 100-250kg, cans for fresh bile and trays for pancreas, with market prices. CTA w.NPD discuss importequip. instal. and running in	 NPC,HOU,Fellows Dao. Dao
	PM:	PTE preparing detailed schedule CTA planning running in	NPC
02WEDNESDAY	AM:	CTA approving Biochemlab civil eng. design. PTE supervise DICI instal.	CEDI, Civ.eng., Dao DICI
	PM:	PTE supervise DICI instal. CTA discuss about spoiled ref.standards of enzymes	 NPD
03 THURSDAY	AM:	CTA,PTE weekly meeting:schedule and priority to most urgent action. PTE supervise DICI instal.	NPD,NPC,DICI, BASON,CEDI(Civ. Eng.Design Inst) Civeng,Secretary Interpreter
	PM:	CTA call to UNDP Hanoi at UNDP office	Mr Tiep
04 FRIDAY	AM:	PTE w. at BASON at 10:am CTA visit to VISSAN slaughterhouse	DICI NTA, Dao
	PM:	CTA w. Dao completed list of chemicals for project production	
05 SATURDAY	AM:	CTA visit to Prof.Huyen labs to design the biochem. laboratory DICI stop instal. CTA,PTE, NPD meeting subcontractors	architect Minh Civ.eng. Bason,DICI,CEDI
	PM:	CTA,PTE planning meeting	

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5	JUNE
week	Month

Civeng contract for Biochem. lab. - Prof. Viet start lab installation

No 1 PRIORITY

07 MONDAY	AM:	CTA meeting with NPD, draft letter to Dr.Meixner UCD in Hanoi	
	PM:	PTE sick CTA meeting w. Civil Engineer collecting prices of imported chemicals for project production.	Dao
08 TUESDAY	AM:	CTA,PTE meeting w. Prof. Viet	NPD
	PM:	meeting w. Prof. Viet	
09WEDNESDAY	AM:	CTA meeting w. Prof. Viet	NPD
	PM:	CTA at UNDP office for faxes	
10 THURSDAY	AM:	CTA, weekly meeting 9-11:30 PTE sick	NPD,NPC,DICI, BASON,CEDI(Civ. Eng.Design Inst) Civeng,Secretary Interpreter
	PM:	CTA checked Bason equipm. delivered at project-site, checked Prof.Viet's team wiring.	
11 FRIDAY	AM:	CTA checked the works w. the QClab CTA,PTE meeting about Bason,DICI	NPD
	PM:	CTA,PTE,NPD meeting w. Bason's General Director. CTA,PTE to UNDP office	
12 SATURDAY	AM:	CTA,PTE,NPD meeting w. the Head of Committee of Science and Technology of HCM City. CTA, PTE w. NPD, DICI and Bason solving equipment delivery at project site	
	PM:	Bason start instal. wo telling	
13 SUNDAY		Free	
14 MONDAY	*AM:*	*PTE supervise instal.,civeng works CTA*	
	PM:	*PTE Bason 14:00 supervise instal.*	
15 TUESDAY	*AM:*		
	PM:		
16WEDNESDAY	*AM:*		
	PM:		

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6	JUNE
week	Month

Civil eng. works: equip.store,biochem lab BASON,DICI installation - Electricity,tape water for labs - Prof.Viet's contract

No 1 PRIORITY

14 MONDAY	AM:	CTA at UNDP office PTE,CTA supervise instal.,civengwork CTA w.Dao prepare balance of materials for all project products	
	PM:	CTA checking price of labs glasswares and drafted fax to UCD	
15 TUESDAY	AM:	PTE works with Mr Nam DICI CTA at UNDP office CTA meeting with HOU about Prof.Viet's sontract	
	PM:	CTA,PTE visiting Bason CTA w.Dao about balance of materials for all project products	
16WEDNESDAY	AM:	PTE works with DICI (Minh)and checks equipment delivered CTA works with HOU	
	PM:	PTE CTA checking equipment at Bason	
17 THURSDAY	AM:	CTA,PTE weekly meeting Dr Meixner's call from Hanoi	NPD,NPC,DICI, BASON,CEDI(Civ. Eng.Design Inst) Civeng,Secretary Interpreter
	PM:	CTA's letter to Dr Czizer	
18 FRIDAY	AM:	CTA at UNDP office CTA meeting with PTE and Vietnamese	
	PM:	side of the project	
19 SATURDAY	AM:	CTA's letter to Miss Deroy,Mrs	
	PM:	Stephanini and Dr Meixner	
20 SUNDAY		Free	

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7	JUNE
week	Month

Faxes to Vienna about materials - Meeting UCD - schedule -

No 1 PRIORITY

21 MONDAY	AM:	CTA,PTE sending fax to UNIDO Hanoi about Prof.Viet's contract amendments. PTE typing letter to DICI	
	PM:	CTA,PTE meeting with NPD,HOU	
22 TUESDAY	AM:	CTA PTE at UNDP office	
	PM:	CTA,PTE meeting with NPD	
23WEDNESDAY	AM:	CTA letter to Dr Csizer about chemicals prices for production	
	PM:	CTA's typing letter to Dr Meixner and at UNDP office Vienna's authorization of DICI contracts and revised budget received	
24 THURSDAY	AM:	CTA,PTE weekly meeting CTA sending offer from chemicals supplier	NPD,NPC,DICI, BASON,CEDI(Civ. Eng.Design Inst) Civeng,Secretary Interpreter, Prof.Viet's team
	PM:	CTA PTE NPD NPC at Que Huonh hotel. Delay of Dr Meixner's arrival.	
25 FRIDAY	AM:	UCD meeting CTA,PTE,NPD at project site	NPD,NPC,DICI, BASON
	PM:	New letter to Dr Csizer drafted and typed by CTA	
26 SATURDAY	AM:	CTA discussing QC expert mission, drafted and typed two new letters to UNIDO Vienna, Dr Csizer and Ms Deroy	
	PM:		
27 SUNDAY		Free	

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8 JUNE JULY week Month		PTE last week on the field - Prof.Viet's contract - QC expert mission No 1 PRIORITY	
28 MONDAY	AM:	CTA at UNIPHA with NPD CTA checking works in biochem lab Sprectophotometer is not right.CTA sending faxes to Vienna PTE working on certificates for Bason	Prof.Viet team DICI
	PM:	CTA PTE checked works on project site	
29 TUESDAY	AM:	CTA meeting with NPD and Dr Meixner CTA meeting Saigon Instrumentation Services men about missing items CTA,NPD meeting prof.Viet's team PTE working on certificates for Bason	 Bason, DICI
	PM:	CTA meeting with NPD about new delay of QC exp.fielding. CTA preparing detailed work program for QC expert.	
30WEDNESDAY	AM:	CTA meeting Saigon Instrum.Services. CTA PTE discuss location of Rina centr CTA preparing faxes to HN and Vienna about QC exp. Vienna authoriz.of Prof.Viet's contract received PTE working on certificates for Bason	DICI DICI,Bason
	PM:	CTA meeting w. NPD. PTE preparing status and mission report Phone call from Dr Meixner about Prof. Viet's contract	
01 THURSDAY	AM:	CTA,PTE weekly meeting	NPD,NPC,DICI, BASON,CEDI(Civ Eng.Design Inst) Civeng, Secretary Interpreter
	PM:	CTA preparing detailed fax to UCD about scope of works in prof. Viet's contract PTE preparing status and mission report CTA comments to PTE status report of 01 Jul93.	
02 FRIDAY	AM:	CTA completed and sent fax to UCD about prof.Viet's contract PTE working on certificates for Bason	
	PM:	CTA at UNIPHA w. NPD about postponement of QC exp. mission PTE typing status and mission report	
03 SATURDAY	AM:	CTA dealing with prof.Viet's contract	
	PM:	PTE leaving for Vienna at 5:00 PM CTA saw off PTE at airport	
04 SUNDAY		Free	

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9	JULY
Week	Month

Completion of biochemlab - TPR postponement
DICI instal. of foreign equipment

No 1 PRIORITY

05 MONDAY	AM: PM:	CTA sick at hotel PTE debriefing in Vienna	
06 TUESDAY	AM: PM:	CTA checking progress at project site, incl. prof.Viet's team CTA meeting about exproof in aceton hazard premises. CTA at UNDP office CTA preparing draft amendment to prof. Viet's quotation CTA checking the work of Rina centr. CTA meeting prof. Viet	 HOU, Mr Tuan DICI
07WEDNESDAY	AM: PM:	CTA met prof. Viet and reached an agreement with him about the contract CTA checked and advised the completion of biochem lab. CTA to UNDP office but the project car did not arrived even at 5 p.m.	
08 THURSDAY	AM: PM:	CTA,PTE weekly meeting CTA at Bason checking refrigerated truck. Temperature condition was not reached even in 3 hours instead of 1.3	DICI,BASON,CEDI (Civ.Eng.Design Inst) Civeng, SecretaryInterpr
09 FRIDAY	AM: PM:	CTA checked and advised the completion of biochem lab, spray drier work, prof. Viet team work. Phone call to Dr Meixner. Discussed letter postponing TPR final meeting. CTA advised Dao in drafting contract with prof. Huyen CTA prepared his weekly work program	DICI, Prof. Viet NPC
10 SATURDAY	AM: PM:	CTA checked newly found by DICI broken glass items and Kavalier's manuals. CTA meeting w. NPD about next week priorities CTA discussing draft of contract with prof.Huyen	DICI, HOU, NPA NPC, NPA, HOU, Lien, Dao
11 SUNDAY		Free	
MONDAY	*AM:* *PM:*		

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10	JULY
week	Month

Prof.Huyen contract. Bason equipment checking. Mr Tiep from UNIDO Hanoi.

No 1 PRIORITY

12 MONDAY	AM:	UNDP office. CTA checking all the works at project site: Bason, DICI, civil engineering, frof. Viet's team.	
	PM:	Meeting with Prof. Huyen	
13 TUESDAY	AM:	Meeting with NPD and project staff. Fax to Hanoi	
	PM:	Bason visit. Refrig. truck is not acceptable. New fax to Hanoi	
14WEDNESDAY	AM:	At Bason with Mr Thieu. Bason delivered 2 items 1.6, 1.12. Checked refrig.truck again but the temperature inside does not meet requirements. Five items with stirrers checked and accepted.	
	PM:	Arrangements at the biochemlab. UNDP office with Mr Tiep.	
15 THURSDAY	AM:	CTA weekly meeting	NPD,NPC,DICI, BASON,Prof.Viet team.Civeng,Secr etaryInterpreter
	PM:	Meeting with Prof. Huyen At UNDP office with Mr Tiep and Mr Thieu	
16 FRIDAY	AM:	At Bason, checking refrig.truck, again not acceptable. UNDP office	
	PM:	With Prof. Huyen.	
17 SATURDAY	AM:	Meeting with Mr Tiep	
	PM:	Discussion about water supply in the QC laboratory.	
18 SUNDAY		CTA meeting with Mr Tiep about funds	NPD.NPC.HOU

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11	JULY
week	Month

Government funds for the electrical supply and arrangements to use funds saved - SERVA enzymes - Biochemlab and training course.

No 1 PRIORITY

19 MONDAY	AM: PM:	Meeting with NPD. Sending fax at UNDP office At Bason with NPD checking refrig.truck which is not acceptable.	
20 TUESDAY	AM: PM:	Serva enzymes, airport. With Prof Huyen Commissioning of biochemlab. Comments, objections. With NPD. UNIPHA, Bason and Polytechnical Institute to check the water cooling unit. No drawing or documentation.	
21WEDNESDAY	AM: PM:	Meeting with NPD, Prof.Viet's team: training course Preparing letter about Government funds Preparing TOR for prof.Huyen. Checking all project premises	
22 THURSDAY	AM: PM:	CTA weekly meeting Separate meeting with NPD after that. Meeting at Bason w. Mr. Truong Dong Nhan about Government funds for the electry supply. Drafted and sent fax to UNIDO Vienna.	NPD,NPC,HOU,DICI BASON,Civ.Eng.Co Prof.Viet's team interpreter NPD, HOU
23 FRIDAY	AM: PM:	Discusions and arrangements about biochemlab. Meeting w. NPD New letter to Dr Csizer and another one to UNDP about the Serva enzymes that are at Hanoi Airport for a long time. Discussions about the biochemlab arrangements and Serva enzymes problems	
24 SATURDAY	AM: PM:	Three meetings w. NPD. Arrangements about funds saved for the electricity supply. At UNDP office	
25 SUNDAY		Further discussions about funds saved and project problems during trip to Vung Tau.	

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12	JULY AUGUST
Week	Month

Lab scale extraction of cattle pancreas
CTA last week and arrangements for works to be performed after CTA's leaving

No 1 PRIORITY

26 MONDAY	AM:	Meeting w. Prof. Huyen Meeting w. NPD	
	PM:	Checked a few suppliers of lab. equipm. in the city	Mr Thieu, Thanh
27 TUESDAY	AM:	Invited Saigon Instrumentation services Co and urged for an offer of a few small lab. apparatus.	
	PM:	Meeting w. Mr Thieu and checking the works at project premises.	
28WEDNESDAY	AM:	With DICI representatives about works performed so far by Bason and DICI Two separate meetings w. NPD	
	PM:	Meeting w. Prof.Huyen. New discussions about the glasswares for the biochem. labs from the store house.	
29 THURSDAY	AM:	UNDP office CTA weekly meeting at 9 a.m. An other meeting w. NPD and Prof.Huyen	NPD,DICI, HOU BASON,Civ.Eng.Co Prof.Viet's team
	PM:	Drafted letters to Dr Csizer	Civeng,Secretary Interpreter
30 FRIDAY	AM:	Checking erection of water cooling unit Serva enzymes received and kept at +4°C Start of cattle pancreas extraction at biochem.lab. to obtain chymotrypsin and trypsin.	Prof. Huyen's team and project team
	PM:	UNDP office. Worked at biochemlab	
31 SATURDAY	AM:	Authorization for local purchase of aceton and other chemicals received Biochemlab second extraction and salting out About exproof lightings and water cooling unit drawings and certificate.	Prof. Huyen's team and project team. NPD, Bason, Minh and Nam (DICI)
	PM:	Work program of last three weeks.	
01 SUNDAY		With Prof. Huyen	
02 MONDAY	*AM:*	*Last arrangements before leaving for Vienna.*	
	PM:	*CTA leaving at TSN airport*	

Annex 5.4

BỘ NÔNG NGHIỆP
và CÔNG NGHIỆP THỰC PHẨM
Agriculture and Food Industry Ministry

TRUNG TÂM CHẨN ĐOÁN – KIỂM DỊCH
ĐỘNG VẬT TP HỒ CHÍ MINH
Animal disease diagnostic and veterinary
inspection centre of Hochiminh city

Ngày 01ère ,Avril,1992
Date

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
SOCIALIST REPUBLIC OF VIET NAM
Độc Lập — Tự Do — Hạnh Phúc
Independence — Freedom — Happiness

CERTIFICAT RELATIF AUX GLANDES,ORGANES ET ABATS SEPARES IMPORTES POUR USAGE PHARMACEUTIQUE.

MINISTERE : DE L'AGRICULTURE ET DE L'INDUSTRIE DES ALIMENTAIRES
SERVICE : QUARANTINE VETERINAIRE

I. IDENTIFICATION DES DENREES
ESPECE ANIMALE DE PROVENANCE : PORCINE
NATURE DES PRODUITS :PANCREAS DE PORC CONGELS
NATURE DE L'EMBALLAGE : CARTONS
NOMBRE DE COLIS :04 CARTONS POIDS NET :46 kgs

II DESTINATION DES DENREES
DE(lieu de l'expedition) :HOCHIMINH CITY/VIETNAM
LES DENREES SONT EXPEDIEES A :LE HAVRE-FRANCE
PAR BATEAU : TRICOLOR SONG/LUDWIGSHAFEN EXPRESS
NOM ET ADRESSE DE L'EXPEDITEUR :OMPHA PHARMACEUTICAL UNITED ENTERPRISES HCMC.
121 LY CHINH THANG ST,DIST 3,HOCHIMINH CITY SR VIETNAM

NOM ET ADRESSE DE DESTINATAIRE : CONSIGNEE :FAVIGEL S.A
ROUSSEL HOECHST P/D COLLECTORGANE TOUR 92080 PARIS LA DEFENSE CEDEX 3.

III RENSEIGNEMENTS SANITAIRES
Je ,soussigne(nom et titre):
veterinaire officiel,certifie que les denrees designees ci-dessus:
a-Proviennent en totalité en totalité d'animaux abattus dans des établissement soumis à une inspection veterinaire permanente et reconnus sains avant et après abattage.
b-ne presentent aucune altération pathologique .
c-ont été preparées,manipulées et expédiées suivant toutes les exigences de l'hygiène.

SIGNATURE ET CACHET OFFICIEL

DOCTEUR VETERINAIRE

Annex 5.5

Collectorgane

ROUSSEL UCLAF

Adresse : Tour Roussel Hoechst 92080 Paris La Défense Cedex 3 (France)
Télex : UCLAF 610884 F
Groupe Télécopie : +33 1 40 81 49 49

Direct Télécopie : +33 1 40 81 41 04
De : M. Rémi JOHN
Direct Téléphone : +33 1 40 81 41 13

U N I P H A (VIETNAM) 84 82 24 408

REF. : T I N - 1 PAGE
LE 23 JUIN 1992

ATTN. Mr TRAN TUU

LIÊN HIỆP XNDPDL/TP
VĂN THƯ ĐẾN
Số 375
Ngày 24 tháng 6 năm 92

Objet : Pancréas de porc congelés

Nous avons bien reçu les échantillons de votre production par l'intermédiaire de FAVIGEL. La qualité est tout à fait correcte, les glandes sont bien dégraissées et la congélation est rapide. Nous sommes prêts à considéror l'importation de lots industriels.

Nous vous remercions de bien vouloir nous indiquer si vous pensez pouvoir mettre à notre disposition un container complet de pancréas de porc congelés. Bien entendu vous voudrez bien nous indiquer également la date de l'expédition estimée ainsi que votre idée de prix FOB HOCHIMINH Ville ou CFR LE HAVRE/ ROTTERDAM.

Meilleures salutations

Rémi JOHN

United Nations Development Programme

World Development

F A C S I M I L E

To: MS. A. TCHEKNAVORIAN IO/T/CHEM UNIDO, VIENNA FOR: MR. SCIZER	Date: April 22, 1993 Message No. VIE/179 /93 Fax No. 214041	
From: M.J. MEIXNER UNIDO COUNTRY DIRECTOR HANOI, VIETNAM	Account: UNIDO	File: VIE/86/016 (GEN) Drafted by: NKT/DG1
Subject: VIE/86/016, ANIMAL BY-PRODUCTS		Total Page(s): 07

MESSAGE:

With reference to our telephone conversation on 20 April 1993, I do recommend that local purchase orders should be given to:

1. Prof. Phan Hung Viet from Hanoi University to install the laboratory according to his revised quotation which we just re-negotiated after talking to you on the phone. My colleagues and I are convinced that the work load and the new bergain price do match. Moreover we have complete confidence in Prof. Viet's and his colleagues' ability to do an excellent job. They have proven their competence before in other UNIDO and UNICEF projects. A complete copy of the revised quotation is attached herewith for your reference.

2. DICI for total of US$ 9,990.00 and US$ 6,140.00 minus 5% to install a) KAVALIER, L+T Labortechnik... and b) instrumentation. This new price was arrived at after today's re-negotiation of their original quotation. DICI engineers confirmed that they would be able to install all the equipment delivered by Kavalier without relevant drawings and documentation with the exception of the Rotary Evaporator 20 l/h. They would also try to set up the Rotary Evaporator but with certain reservation. In case, DICI will not be able to install this item, we will make an reduction of the payment in proportion to the amount of work involved.

I am quite sure that Mr. Strenger has all relevant knowledge to assist DICI in this matter. Otherwise, we can only say that we have seen DICI's work in Vietnam and are confident that they would perform the task to our satisfaction. Therefore, I ask you to issue a local purchase contract for DICI.

We look forward to the early authorization from UNIDO Headquarters for the required local purchase orders as there are only about 3 weeks left until the missions of Prof. Scedrov and Mr. Strenger. Please also prepare Terms of Reference for their coming missions to be sent to our office for UNDP's and Government's consideration.

Thank you for your kind coope[illegible]

QUOTATION

Installation and Testing of Laboratory Equipments for Project DP/VIE/86/016

Att: **UNIDO Hanoi**
29 Phan Boi Chau Str., Hanoi, Vietnam
Tel: 2 57495, 2 57318
Fax: 84-42-59267

From: **Dr. Pham Hung Viet**
Head of Technical Chemistry Dep, Hanoi University
19 Le Thanh Tong Str., Hanoi, Vietnam
Fax: 84-42-59617

1. Installation and Testing of the following equipments of project VIE/86/016: (Estimated 4 experts will be working within 20 days in Hochiminh City)

Item	Equipment	Pcs	Value
it.1.	Refrigerated centrifuge 3 lt Barhold Hemple Germany	1	15'000
it.2.	Untrafiltr.app.5-10lt/hDen	1	8'000
it.3.	Spectrophotometer UV/VIS 195-1100 nm PhilipsBritain	1	20'000
it.4.	pH meter autocal pH M83 Radiometer Denmark	1	1'500
it.5.	Macro Analyt.balance fully electronic Metler Switz.	1	3'000
it.6.	Basic TLC kit Camag Switzerland	1	2'700
it.7.	UV cabinet II Camag Switz.	1	800
it.8.	Rotavapor - M compact 200 ml Switzerland	1	1'000

it.9.	Multidosimat titratingstand with magn.stirrer, micro-processor control, digital read out, autom.stop cock Meurohm Switzerland	1	2'702
it.10.	Karl Fischer volumetric titrator PK100-10 Laborgeraete-Hamburg Wien	1	6'030
it.11.	Soxhlet extr.app.Kimax Jeaner Glasswerk Germany	1	400
it.12.	Glass vessels, Buchner funnels		div.
it.13.	Glasswares Dist. app.500ml, vac. dissicator waterbath, centrifuge spinette magn.stirrer VWR (2pcs), lab. microscope NML1000, universal oven UN100, lab.furnace, UV lamps		16'133
	(Total cost of the lab equipments		74'836)

Cost

	7,300 US$
2. Travel cost for 4 persons Hanoi-Hochiminh City-Hanoi	**400 US$**
3. Accommodation and allowance cost for 4 persons within 20 days in Hochiminh City	**1,200 US$**
4. Installation of electrical supply system for analytical labors (Material according to annex)	**550 US$**
Total cost:	**9,450 US$**

Warranty: 12 months from finishing installation. Service after warranty periode in agreement.

Hanoi, April 20,1993
Head of Dep.of Tech. Chem.
Hanoi University

Dr. Sc. Pham Hung Viet

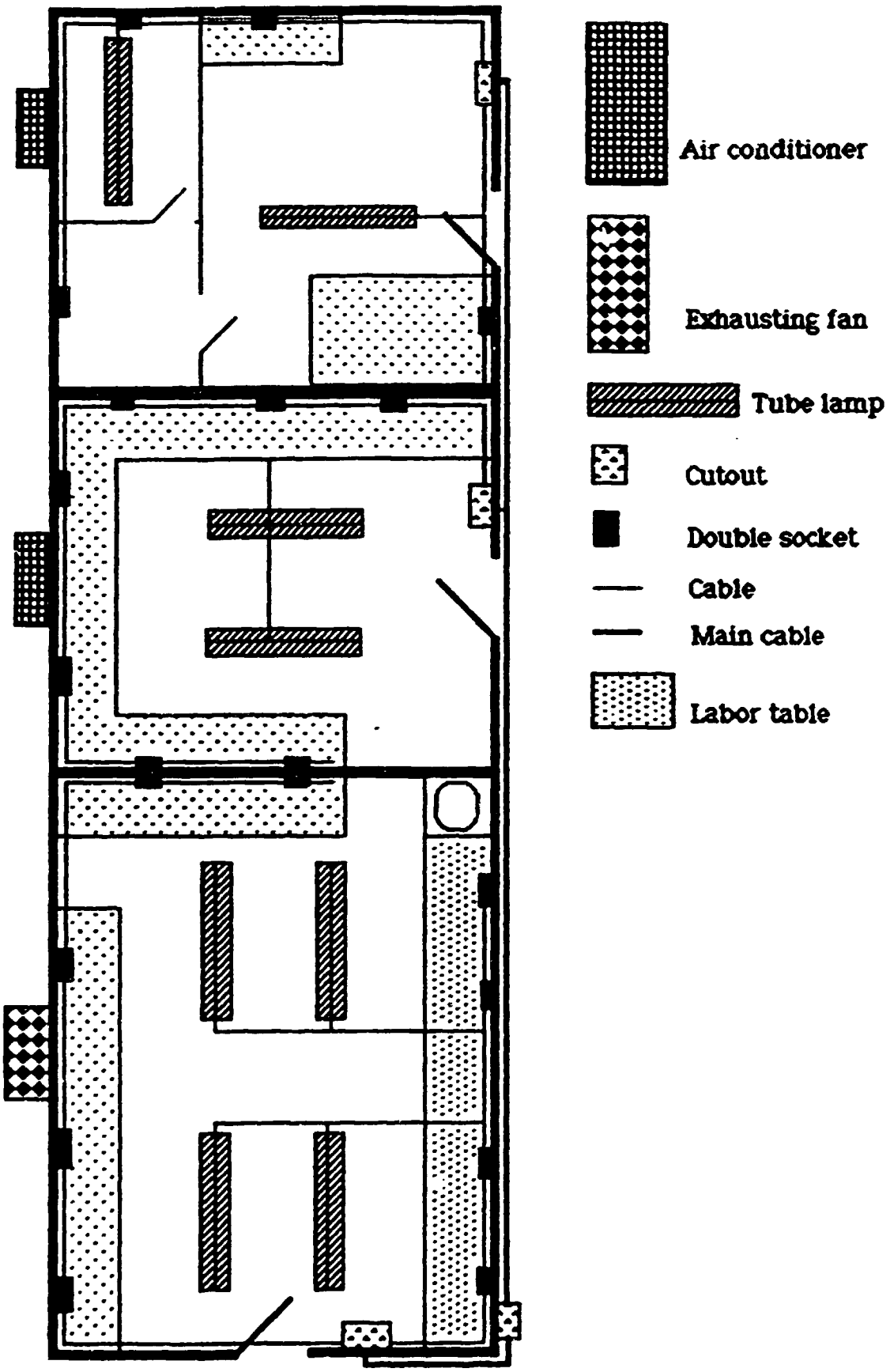
LIST OF NECESSARY MATERIALS FOR INSTALLATION OF ELECTRIC SYSTEM FOR LABORATORY OF UNIPHA VIE/86/016

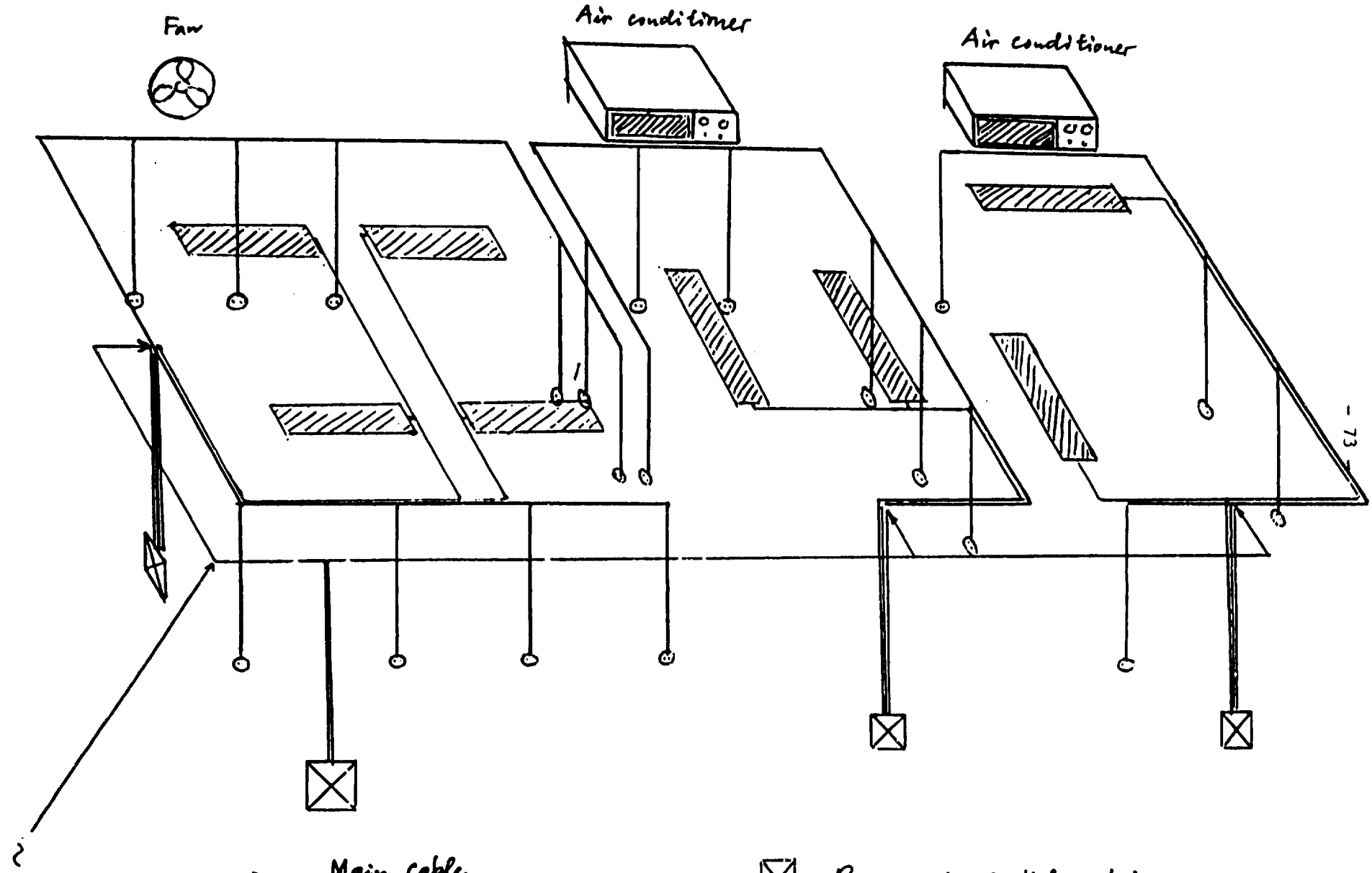
Item	Quantity	Unit price	Subtotal Cost
1. Double neon-light lamps	8 coubles	150,000 VND	1200,000 VND
2. Double sockets (russia)	20 units	6,000 VND	120,000 VND
3. Total cutouts	1 unit	90,000 VND	90,000 VND
4. Single cutout for each room	3 units	30,000 VND	90,000 VND
5. Tube safety fuse (chinese) for lamps system	3 units	7,000 VND	21,000 VND
6. Safety fuse for each room	6 units	8,000 VND	48,000 VND
7. Safety fuse for the necessary air-conditioner	2 units	8,000 VND	16,000 VND
8. Cable (d=5 mm)	40 m	4,000 VND	160,000 VND
9. Single wire for elec. socket	230 m	2,700 VND	631,000 VND
10. Single wire (d=3,5 mm) for air-conditioner	38 m	3,500 VND	126,000 VND
11. Double wire for lamps system	65 m	950 VND	61,750 VND
12. Double switcher for lamps	4 units	7,000 VND	28,000 VND
13. Switcher for exhausting fan	1 units	7,000 VND	7,000 VND
14. Electric contact box	14 units	3,000 VND	42,000 VND
15. Plastic tube for housing cable	60 units	2,000 VND	120,000 VND
16. Screw, plastic screw, gutter	diverse		30,000 VND
17. Adhesive tape	1 coil	6,000 VND	6,000 VND
Total cost for purchasing the necessary materials :			2,796,750 VND
Salary for installation of total electric system :			3,000,000 VND
Total cost :			**5,796,750 VND**

Note: 1. The given prices of above mentioned items are based on surveying prices on free market in Hanoi

2. The given quotation is planed for one-phase current system

CROSS-SECTIONAL SCHEME OF ELECTRICITY SYSTEM OF LABORATORY




Fan
Air conditioner
Air conditioner
Main cable
Cable for Socket system
Cable for Lamps system
Room main switcher table
Socket

LIST OF THE MEMBERS OF THE TEAM FOR INSTALLING LABORATORY EQUIPMENTS OF PROJECT DP/VIE/86/016

==========

1. Pham Hung Viet, Prof. Dr. Sc.	Project coordinator; lecturing chair for instrumental analysis; Head of Technical Chemistry Department, University of Hanoi
2. Tu Vong Nghi, Prof. Dr. Sc.	Expert for electrochemical analysis of Drugs control; Head of Analytical Chemistry Department, University of Hanoi
3. Tran Quang Vinh, Ms. Sc.	Electrical Engineer; Head of Electronics Section, Central Workshop, University of Hanoi
4. Do Phuc Quan, Dipl. Ing.	Applied Computer Science Expert, responsible for applied Softwares for measuring equipments, University of Hanoi
5. Hoang Xuan Trao, Dipl. Ing.	Expert for installation of laboratory electric system, University of Hanoi.

All the above mentioned consultants have studied or been trained in abroad (Germany, Switzerland, Netherlands); and they can speak English and/or German language.

1. : VIE 66/016. Annual by p ds pilot plant

Annex 5.7 - 75 -

Report to CTA

- Imported equipment installed by DICI

Item	Name		Test operation	Installation in project: installation position	Installation in project: connected w. the piping Sys.	Remark
01.1	Grinding Machine			y		
015	Press filter			y	y	Lampart Hungary
018	Hydraulic platform		y	y		
021	Rectification column			y	—	Kavalier
025 a/b	centrifugal pump			y	y	
034	Centrifuge		y	y	y	Rina Espana
039	Centrifugal pump			y	y	
042	Rotaty evaporator			y	y	
044	Spray drier (include air comps		y	y	y	
051	Chest freezer (Spec					haven't got the do. of the items
061	pistn compressor		-	y	y	
062	Centrifugal vacum pump (Separator liquid)			y	y	
063	air dryer			y	y	
065	Water boiler			y	y	
081	Air exchanger		y	y	y	
082	Local exhaution		y	y	y	
083	Air unditioner			y	y	
091	Water distilation			y	y	Kavalier
092	Water demineralization					not yet foundation haven't got the door
095 (a, b)	Centrifugal pump			y	y	

... ...tal NB

* The equipments are manufactured [illegible] by Ba Son under
– OICI supervision.

Item	Name	Tests in Ba Son under OICI supervision		Installation in projec		Remark
		Test pressure	related with Steam by using water	installed position	connected with piping system	
012	Vessel 200 lit	yes	y	y	y	
013	Filter inox	yes		yes	yes	
014	Vessel 400 P	y	y			
015	Vessel 50 l	y	y	y	–	
017 017a	Tray dryer and condinsat			y	y	
019	Vessel 100 l	y		y	–	
01.11	Heat exchanger	y		y	y	
0112	Vessel 50 lit	y	y	y	y	
02.2	Vessel 100 lit	y		y	y	
023	water cooling unit	check by [illegible]		yes (30/7)	–	Not yet satisfied
02.4	Vessel 1000 l (3pcs)	y		y	y	
031	vessel 250 lit	y	y	y	y	
03.2	filter inox	y		y	y	
033	Vessel 250 l	y	y	y	–	
036	Vessel 250 l	y	y			
037	filter inox	y		y	y	
038	Vessel 200 l	y		y	y	
041	Vessel 100 l	y		y	y	
043	Vessel 20 l	y		y	y	
052	Refrigerated lorry					–
053	Refrigerated room			y		– ver check work out
064	Vessel 400 l	y		y	y	
066	Steam generator	check by [illegible]		y	y	– Not checked yet
093	Vessel 250 l	y		y	y	
094	vessel 1000 l	y		y	y	

Item	Name	Tests		installation in proje		Note
		Test pass and ...	Test operation	installation position	connected with System	
07.1	Electric generator					No
	Electric transformer		—	y	—	
	Steel untuechien piping Systems		—	y		
	water supply			y	—	
	Air compresse Supply			y	—	
	Steam Supply			y	—	
	Vacuum Supply			y	—	
	Cool water circulation			y	—	
	warm water supply			y	—	
	Sewage			y	—	Not yet fulfilled
	Lighting electric Syste					
	in normal room			y	—	
	in Explos room from 3,8 ... 7,11,12,14			Had been Removed 30/7		Have to replace
	Alarming power System	e 3 places				
	in normal room			y		
	in Explosion room from 7,11,12,14					Have to replace

... Chi Minh City 27.7.1993

on behalf ELCI

Le Quang Minh

DICI recommended Civil engeneering to perform the works as follows:

- To cover two fans had been installed on the roof.
- To tile acid proof brick for foudation demineralization room 5.6 (grove floor) and tank audulated Room 16.
- To build partition walls for room 5, 6 and room 9.
- To make the holes of equipment foudation.
- installed the steel doors in room 5, 6.

28 / 7 / 1993

DICI

Lê quang Ninh

FACSIMILE

To : Mr. P. GILABERT Programme Officer UNIDO-Hanoi, Vietnam For: Dr.Z.CSIZER, Backstopping Officer, UNIDO, Vienna	Date 22 July 93 MSG No.	
	To Fax No 267484	
	Our Fax No +84 (8) 231834	
	Drafted by :	
From: Prof. Oleg Scedrov, CTA DP/VIE/86/016, UNDP, HoChiMinh City	Authorized by :	
	Account: UNIDO	File: DP/VIE/86/016
Subject : Pharmaceutical Raw Materials from Slaughterhouse By-Products, DP/VIE/86/016	Total page(s) 03 *including this page*	

MESSAGE

Dear Dr. Csizer,

The Vietnamese Government recently supplied funds to UNIDO to cover a part of expenses for the electricity supply of the project, which amounts to an equivalent of US$ 31,000. The power supply was performed by the Bason Shipyard and was included in the Bason contract with UNIDO. Since the above amount will be paid by the Vietnamese side and remained free in the Bason contract, I discussed about the matter with Mr. Tran Tuu, the Vietnamese Staff of the Project and Mr. Nguyen Khac Tiep, UNIDO programme Officer from Hanoi, who was in Ho Chi Minh City for a few days. Mr Tran Tuu and I would like to ask you for your agreement upon using the above funds for the benefit of the project products. Mr. Tiep agreed with us and suggested the solutions for the matter. We would appreciate your advice how to solve the case. We would prefer, if possible, to leave the amount in question at the Bason for the purchase of items, which we would like to ask for your approval. After selection of the most acceptable suppliers, Bason are able to purchase and deliver the equipment in a very short term, from Singapore and other countries without customs duties and with only 2 percent for the defense.
We prepared a priority order of the items we have selected :

1.1. Tablet enteric coating machine or
1.2. Freeze drier and
2. Air conditioners and
3. Small laboratory equipment :
   - Water bidistilling unit, laboratory size, 4 to 5 lit/hr,
   - Vacuum pump, laboratory size,
   - Mercury manometers, laboratory size, 2 pieces,
   - Vacuum drier, laboratory size, 30 to 40 liters,
   - Autoclave, laboratory size, 30 lat 132°C.

Ad 1.1. All project products can be used in the form of tablets but must passed the stomach and be dissolved in the thin intestines only. So, must the tablets be perfected from the stomach acidic media by special enteric coating. The enteric coating machine for tablets was planned for the project but cancelled

2/.

because of the shortage of funds. A post of industrial pharmacist mission was planned mainly for introduction of new technologies in the manufacture of enteric coated tablets. We received one offer (copy enclosed) for enteric coated tablet unit amounting to US$ 26,000 from the company Rama Cota R.D. NARONG, Machinery Co Ltd. 522/104-103 SOI SONGPRANG-ASOKE-DINDANG ROAD, THAILAND, Fax (662) 2465 297.
We would prefer to collect three offers of different suppliers to select the most acceptable one. Please be so kind to collect the offers from two different suppliers for the item 1.1.
Ad 1.2. In the case that the item 1.1 is not possible to purchase, we would like to acquire item 1.2, a freeze drier. Chymotrypsin and trypsin purified that will be processed by the project can reach better quality of the purified enzymes as freeze dried instead of vacuum dried. A freeze drier was planned in the Project Document signed on 6 October 1989, Annex 4b, Item No 5. It was omitted after the first revision of the Project Document because of the shortage of funds. It would be a benefit for the project to have freeze dried chymotrypsin and trypsin. The item in question is very expensive, but the project production of the above enzymes is limited (only 35gr chymotrypsin and 18gr trypsin per batch), and a smaller size freeze drier can satisfy the project requirements. We have an offer of the O.S.I. Co Ho Chi Minh City for a laboratory scale equipment of 5 liters, amounting to US$ 24,819, including air-freight (offer enclosed), address :
O.S.I. Ho Chi Minh City,
Vimedimex II,
246 Cong Quynh St,
Ho Chi Minh City,
Vietnam.
Maybe for the same amount, it is possible to have a bigger size freeze drier and that is why we included addresses of two well-known manufactures :
-USIFROID, rue Claude Bernard,
Z.A. de Coignieres-Maurepas,
78310 MAUREPAS, FRANCE,
Telex : USIF 696322F.
-LEYBOLD A.G.,
Wilhem-Rohm-St 25,
D-6450 HANAU 1, GERMANY.
Fax : 06181-34-1090.
We would like to ask you for your kindness to collect more offers for freeze driers among which the most acceptable could be selected.
Ad 2. Ten air conditioners were purchased in 1990 for the project production premises. Three more air conditioners would be needed, one for the quality control laboratory, one for the microbiological laboratory, and one for the project office. The three air conditioners amount to US$ 660x3= 1980 (offer enclosed).
Ad 3. The laboratory equipment as quoted above would be needed for different experiments and better work conditions in the biochemical laboratory.

3/.

Sum of 1.1/ or 1.2/ and 2/ and 3/ amounts to :

1.1	24,000	1.2	24,819
2.	1,980		1,980
3.	5,020		4,201
Total	US$31,000	Total	US$ 31,000

Please let us know about your decision.
Thank you for your kindness and help.
With our best regards,

Yours sincerely,

Mr. Tran Tuu, NPD

Prof.O. Scedrov, CTA

United Nations Development Programme

World Development

F A C S I M I L E

To : Dr. M.J. Meixner, UNIDO Country Director, UNDP, Hanoi For: Prof. Pham Hung Viet, Head of Technical Chemistry Dpt., Hanoi University, Hanoi	Date 13 July 93 MSG No.	
	To Fax No 267484	
	Our Fax No +84 (8) 231834	
	Drafted by :	
From: Prof.O.Scedrov, CTA DP/VIE/86/016, UNDP, HoChiMinh City	Authorized by :	
	Account: UNIDO	File: DP/VIE/86/016
Subject : Pharmaceutical Raw Materials from Slaughterhouse By-Products, DP/VIE/86/016	Total page(s) 01 *including this page*	

MESSAGE

Dear Prof. Viet,

I would like to inform you that your team works without any voltage stabilizer with very sensitive apparatus of the project including spectrophotometer. In HoChiMinh City the current is not stable and can be fluctuated from 150 V to 240 V instead of 220 V. That is well known and stabilizers are usually used to protect the apparatus. I hope that the project apparatus, installed by your team, will not be damaged.
I discussed the matter with Mr. Tran Tuu and he suggested me to inform you.

With kindest regards,

Yours sincerely,

(Prof.O.Scedrov)

Annex 5.10

Prof. Oleg Scedrov,
CTA DP/VIE/86/016,
UNDP, HoChiMinh City,
Vietnam

22 July 1993

Mr. Tran Tuu,
NPD DP/VIE/86/016,
HoChiMinh City,
Vietnam

Dear Mr. Tran Tuu,

I must inform you in written form that:

1) I cannot follow our arrangement of 19 July 1993 to complete the biochemical laboratory by putting in shelves all glassware, small laboratory apparatus and chemicals.
Yesterday, on 21 July 1993, the date when we agreed to start with the above completion of the biochemical laboratory, the civil engineering workers were still in the laboratory, and yesterday afternoon the store keeper was not present at the project site. The store keeper is not at the project site today as well. It is not possible to take the glassware and chemicals from the store without the store keeper, and it is not possible to start to fill the shelves in the biochemical laboratory.
For that reason the Prof. Viet's team cannot start with their training course on 23 July 1993.
I shall be not responsible if the biochemical laboratory will be not ready for use before my departure.

2) These last days of my stay in HoChiMinh City it is hardly possible to me to work without interpreter. Very often he is not at the project site.

3) Every day during the last three weeks I drawn attention to the project staff that on the roof a simple shelter must be arranged to protect the two motors for ventilation on the roof. Today morning no any shelter was done.

Thank you for your understanding.

With kindest regards,

Yours sincerely,

(Prof.O.Scedrov,CTA)

Annex 5.11

Prof. Oleg Scedrov,
CTA DP/VIE/86/016,
UNDP, HoChiMinh City,
Vietnam

29 July 1993

Mr. Tran Tuu,
NPD DP/VIE/86/016,
HoChiMinh City,
Vietnam

Dear Mr. Tran Tuu,

1) Please, kindly order to Mr. Dao and Miss Lan Huong to fill the shelves of the biochemical laboratory with the glassware, chemicals and minor apparatus and instruments from the store. All that were requested and ordered by me two years ago, the UNIDO Headquarters reduced my list to half, because of lack of funds, and all the above items will hardly satisfy the needs of the experiments and processing of the project products on the laboratory scale. It would be very inconvenient to keep the bigger part of the glassware in question in the store-house and always search in the cardboard boxes if an item is needed for a certain work in the laboratory.
In Prof. Viet's quotation of 20 April 1993 we reduced his items 12 and 13, that means the glassware and chemicals, that we expected to arrange ourselves. If we would not exclude these Prof. Viet's items 12 and 13, his team would fill the shelves and tables of the biochemical laboratory with all glassware from the store-house.
In addition there is no power in the laboratory and the air conditioners cannot work. It is too hot there for any experimental work.
The biochemical laboratory is not ready for an experimental work so far.
I expected the full completion of the biochemical laboratory two months ago and I requested that again ten days ago in my letter to you. Now, I have only three days more in Vietnam and I did not succeed even to draft my mission report. In the remained days I can only instruct carefully Prof. Huyen about all experiments and processing of the project products on the laboratory scale. All that Prof. Huyen will do and conduct the project personnel and for that reason he was engaged as a National Consultant of the project.

2) Please, kindly agree and allow to Prof. Huyen's coworkers to enter to the project biochemical laboratory and assist him with the experiments and processing of the project products on the laboratory scale. The Prof. Huyen's coworkers help will be an advantage and a benefit for our project efficiency.
Thank you for your understanding.

With kindest regards,

Yours sincerely,

(Prof.O.Scedrov)

Project Number
DP/VIE/86/016

FINAL LIST OF EQUIPMENT

Project Title : PHARMACEUTICALS FROM ANIMAL BY-PRODUCTS Period ending : JUNE-93

Prodoc ItemNo	Description	Qty	Price	Recept. date	Remarks
01.01	Meat grinder model RM-82 and spares 1.1KW CSFR	1	1'550	5.92	
01.02	Vessel 200lt ss D600 anchor type stirrer 60rpm exproof motor 3.5kW VN	1	*		* incl in 01.7
01.03	Sieve ss D1200 VN	1	*		* incl in 01.7
01.04	Vessel 400lt ss D800 jacketed opened propel. 200rpm exproof motor 3.5KW VN	1	*		* incl in 01.7
01.05	Pressure filter glass enameled type SB-M with steam jacket D630mm Hungary	1	3'600	29.1.92	
01.06	Vessel 50lt ss D400 jacketed opened propel. 200rpm exproof motor 1.5kW VN	1	*		* incl in 01.7
01.07	Vacuum-tray dryer 10 trays x 0.6 m²	1	167'605	03.93	BASON sub.ctr.
01.08	Hydraulic platform hand operated platform 1190x 740mm H 510 - 1800mm charge 500kg Germany	1	47'719	28.1.92	PO 15-1-00918P
01.09	Vessel 100lt ss D500 jacketed VN	1	*		* incl in 01.7
01.11	Heat exchanger D420 91 tubes 25x2 L1400 F=9m2	1	*		* do
01.12	Vessel 50lt ss D400 propel.	1	*		* do
02.01	Glass rect.column DN150 50lt/h CSFR Glass vessel 50lt Dosing pump var.13	1 2 1	33'900	07.92	PO 15-1-0648P
02.02	Nonpressure vessel 100lt D500 VN	1	*		incl in 01.7
02.03	Water cooling unit (36KW) VN	1	*		incl in 01.7
02.04	Nonpressure vessel 1m3 D1000 VN	3	*		incl in 01.7
02.05	Centrifugal pumps selfpriming side channel pump for handling of aceton 3M3/h H=4.5kg/cm2 exproof motor 2KW Ger.	2	*		incl in 01.8

Prodoc ItemNo	Description	Qty	Price	Recept. date	Remarks
03.01	Vessel 250lt ss D600 jacketed anchor type stirrer 60rpm exproof motor 3.5kW VN	1	*		incl in 01.7
03.02	Sieve ss D1200 VN	1	*		incl in 01.7
03.03	Vessel 250lt ss D700 jacketed open propel. 200rpm exproof motor 3.5kW VN	1	*		incl in 01.7
03.04	Centrifuge Rina type 100U-500, filter basket with filtering bag of polypropylene, decanter basket, extractor device, frequency converter and electric control panel D500 1500rpm charge 31kg d: 1.25 kg/dm3 exproof motor 3KW 1400rpm	1	42'160	18.2.92	
03.06	Vessel 250lt ss D700 jacketed open propel. 200rpm exproof motor 3.5kW VN	1	*		incl in 01.7
03.07N	Vac.nutchfiltre D600 VN	1	*		
03.08	Nonpress.vessel 200lt ss D600 VN	1	*		incl in 01.7
03.09	Centrifugal pump selfpriming side channel pump for handling of ammonium sulphate 3M3/h 1.5KW	1	*	*	incl in 01.7 incl in 01.8
04.01	Nonpress.vessel 100lt D400 VN	1	*		incl in 01.7
04.02N	Rotating evaporator RO 20 20lt/h (5.5KW) CSFR	1	*		incl in 02.1
04.03N	Vessel 20lt ss D250	1	*		incl in 01.7
04.04N	Laboratory Spray-dryer No.1 including centrifugal atomizer,air compressor and feed pump 3-7kg/h (12KW) Den.	1	27'430 3 742	27.8.91 .11.91	
05.01	Chest type freezer Westinghouse FC-26V 742lt 0.212KW HgKg	3	*		incl in 08.3
05.02	Refrigerated truck VN	1	*		incl in 01.7
05.03	Refrigerated room 20m3+4°C (18KW) VN	1	*		incl in 01.7

Prodoc ItemNo	Description	Qty	Price	Recept. date	Remarks
06.01	Pistoncompressor 650 lt/min 8 bar 5.5KW GER	1	*		incl in 01.8
06.02	Centrif.vac.pump 120M3/h 150mbar 5.5KW GER 220 400 4.8 210 900 3.0	1	*		incl in 01.8
06.03	Compressed air refrigeration drier 45M3/h GER 0.245KW	1	*		incl in 01.8
06.04	Nonpress.vessel 400lt D800 VN	1	*		incl in 01.7
06.05	Waterboiler German pool GP-80 6KW 300lt HgKg	1	*		incl in 08.3
06.06	Steam gen. 0.2-0.3t/h (240KW) 6KG/cm2 VN	1	*		incl in 01.7
07.01	Transf.station VN	1	*		incl in 01.7
08.01	Airexch.unit 8000M3/h 0.736KW CSFR	2	4'117	09.91	PO 15.1.0796P
08.02	Local exh.unit 900m3/h 0.90KW CSFR	2	*	8.3.92	do
08.03	Air conditioner National CW-2402QH	10	12'579	5.5.91	PO 15-1-00463
09.01	Water dist.app. IDPE 10 25lt/h CSFR	1	*		incl.in 02.1
09.02	Waterdemin.unit ID 500 PP 500lt/hCSFR	1	*		incl.in 02.1
09.03	Vessel 250lt D650 VN	1	*		incl.in 01.7
09.04	Vessel 1000lt D1000 VN	1	*		incl.in 01.7
09.05	Centrif.pumps, selfpriming side channe for handling of distilled and demineral water 2m3/h 3.5kg/cm2 1.1KW CSFR	2	*		incl.in 01.8
it 01	Refrigerator 255lt SANYO SR2600VC	1	2'072	10.91	
it 02	Refrigerator 240lt with freezer of 40lt	1	27'835		
it 03	Pipings and fittings Germany	1	4'117.8	27.2.92	PO 15.1.0918P
it 04	Process control instrumentation Austria	1		23.1.92	PO 15.1.0853P
	(resistance thermometer,level meter,control			14.3.92	PO 15.1.0853P
	unit,digital indicator,PID-controller,on-off valve,control valve,pH measuring loop)		8'915		
it 05	Diaphragm pressure gauges D160mm,spare parts	1			PO 15.2.0356P

Prodoc ItemNo	Description	Qty	Price	Recept. date	Remarks
it 01	Desk-top computer Sanyo model MBC-16 LX-5 HGkG	1	1'475	24.5.91	PO 15-1-00405
	Monitor dual monochrome Sanyo model CTW-14 14"	1	*		do
	Printer Epson model LX-800 9-pin DOT matrix	1	*		do
it 02	Typewriter OLIVETTI	1	550	11.90	
it 03	OH projector	1	800	11.91	PO 19-1-09309
it 04	Screen	1	*		do
it 05	Slide projector	1	*		do
it 06	Minibus TOYOTA HIACE commuter 12-seater	1	11'100	10.91	
it 07	Books, journals (total)	9	5'000	02.8.91	
			*	20.1.92	
			*	7.12.92	

Prodoc ItemNo	Description	Qty	Price	Recept. date	Remarks
it 1	Refrig.centrifuge HERMLE TYPE ZK-510 1.5ltGer. swing-out rotor, 4-place, W/O wind shield	1	14'690	JUL91	PO 15-1-00654
it 2	Ultrafiltr.app.5-10lt/hDen DDS MINI-LAB 10 system complete with heat exchanger(option F1)	1	8'925	AUG91	
it 3	Spectrophot.UV/VIS PHILIPS PU8625/00 complete S/NO.GE 414965 Engl	1	15'960	AUG91	
it.4	pHmeter AUTOCAL PHM83 complete GK2401C Den.	1	3'386	JUL91	
it.5	Analyt.balance METTLER AE200-S EL. Switz.	1	2 926	JUN91	PO 15-1-00403
it.6	Basic TLC kit, incl. UV cabinet II,220vSwitz.	1	2 467	JUN91	PO 15.1.0396P
	CAMAG TLC package plate coating,manual		1'062	APR92	
it.7	UV lamp Switz.	1	*		incl in it.6
it.8	Rotavapor ROT-M-STD 220-240 &HB-140 250mlSwitz.	1	1'541	APR91	
it.9	Multidosimat titrating stand with 649 magnetic stirrer, with microprocessor control, digital read-out, autom. stopcock. Switz.	1	2'702	JUN91	
it10	Karl Fischer titrator CPL Den.	1	6'030	NOV91	PO 15-1-1146P
it11	Soxhlet extr.app. Ger.	1	*		incl in it.1
it13	Glass vessels	1	*		incl in it.10
it14	Buchner funnels	1	*		incl in it.10
it15	Microscope, oven, furnace, CAMAG UV lamps	1	7'433	OCT92	
	Glasswares, various lab. equipment,		4'529	NOV92	
it16	Chemicals	1	6'825	DEC92	
		1	1'565	AUG92	
		1	1 163	OCT92	
it17	Reference samples (free of charge)	1	0.00	APR92	

NOTE : Item No - N = newly added or changed - * = Price included in other item s price

Based on : 1. Project Document
2. Project Equipment Reception Reports
3. UNIDO Non-expendable Property Control Report DEC92
4. Local Purchase Authorization (BASON sub-contract)
5. DICI Equipment Inspection Report

Annex 5.13

Raw Materials, Chemicals and Yields of the Project Production for One and Ten Batches and for 100 kg of Raw Materials

1 - Pancreatin

No.	Item	In	One Batch	Ten Batches	Raw Material Unit
1.1	Pancreas, pig	kg	35	350	100
1.2	Pigs required	Animals	500	5,000	1,430
1.3	Acetone, technical pure	kg	154		440
1.4	Acetone, 80% regenerated	kg	31	435	90
1.5	Sodium bicarbonate, pure	kg	1	10	3
1.6	Water demineralized	kg	70	700	200
1.7	Yield: Pancreatin	kg	3.5	35	10

2 - Dry Bile

No.	Item	In	One Batch	Ten Batches	Raw Material Unit
2.1	Bile, separately cattle and pig	kg	35	350	100
2.2	Cattle required	Head	175	1,750	500
2.3	Pigs required	Animals	530	5,300	1,500
2.4	Formalin, pure	kg	0.035	0.35	0.10
2.5	Yield: Dry Bile	kg	2.84	28.4	8.10

3 - Chymotrypsin and Trypsin

No.	Item	In	One Batch	Ten Batches	Raw Material Unit
3.1	Pancreas, cattle	kg	35	350	100
3.2	Cattle required	Head	250	2,500	715
3.3	Sulphuric acid, pure	kg	2.800	28	8
3.4	Ammonium sulphate, technical pure	kg	55	550	158
3.5	Ammonium sulphate, pure	kg	4.50	45	13
3.6	Sodium hydroxide, pure	kg	0.25	2.5	0.72
3.7	Kieselguhr, pure	kg	0.2	2	0.58
3.8	Calcium gluconate, pure	kg	0.10	1	0.30
3.9	Magnesium sulphate, pure	kg	0.20	2	0.58
3.10	Boric acid, research grade	kg	0.0065	0.065	0.02
3.11	Potassium chloride, research grade	kg	0.008	0.08	0.023
3.12	Disodium hydrogen phosphate, research grade	kg	0.13	1.3	0.38
3.13	Potassium dihydrogen phosphate, research grade	kg	0.05	0.5	0.15
3.14	Sodium chloride, research grade	kg	0.05	0.5	0.15
3.15	Water distilled	kg	30	300	86
3.16	Water demineralized	kg	150	1,500	430
3.17	Yields:				
3.17.1	- Alpha-Chymotrypsin, technical grade (with 20% trypsin)	kg	0.0875	0.875	0.25
3.17.2 or	- Alpha-Chymotrypsin, purified	kg	0.035	0.35	0.10
3.17.3 and	- Trypsin, purified	kg	0.0175	0.175	0.05

Annex 5.14

Local Purchase of Chemicals and Accessories by UNIDO for Ten Batches of the Project Pilot Plant Production

No.	Item	In	Quantity
1	Acetone, technical pure	kg	500
2	Ammonium sulphate, pure	kg	500
3	Magnesium sulphate, technical pure	kg	5
4	Kieselguhr, filter aid	kg	10
5	Glass tube for centrifuge, round bottom, 100 x ø 16 mm	pcs	12
6	Buechner funnel porcelain, ø 158 mm, 776 ml	pcs	1

Annex 5.15

Local Purchase of Raw Materials, Chemicals and Accessories by the UNIPHA for Ten Batches of the Project Pilot Plant Production

No.	Item	In	Quantity	Remarks
1	Pancreas, pig	kg	350	
2	Pancreas, cattle	kg	350	
3	Bile, cattle	kg	350	Separately cattle and pig
4	Bile, pig	kg	350	
5	Ammonium sulphate, technical pure	kg	100	
6	Sulphuric acid, pure	kg	28	
7	Sodium hydroxide, pure	kg	2.5	
8	Sodium gluconate, pure	kg	1	
9	Sodium bicarbonate, pure	kg	10	
10	Formalin, pure	kg	0.35	
11	Boric acid, research grade	kg	0.065	
12	Potassium chloride, research grade	kg	0.08	
13	Disodium hydrogen phosphate, research grade	kg	1.30	
14	Potassium dihydrogen phosphate, research grade	kg	0.50	
15	Sodium chloride, research grade	kg	0.50	
16	Tray for pancreas, 290 x 230 x 40 mm	pcs	150	
17	Can plastic 25 lit	pcs	10	
18	Can plastic 20 lit	pcs	15	
19	Food box weekend, heat insulated, 20 lit	pcs	6	
20	Balance 150 kg	pcs	1	

Annex 5.16

UNIDO ONUDI

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
ORGANISATION DES NATIONS UNIES POUR LE DEVELOPPEMENT INDUSTRIEL

VIENNA INTERNATIONAL CENTRE
P.O. BOX 300, A-1400 VIENNA, AUSTRIA
TELEPHONE 211310 FAX 232156
TELEGRAPH UNIDO VIENNA, TELEX 135612

CENTRE INTERNATIONAL DE VIENNE
B.P. 300, A 1400 VIENNE (AUTRICHE)
TELEPHONE 211310 FAX 232156
TELEGRAPH UNIDO VIENNE, TELEX 135612

REFERENCE: UNIDO/FMTC/(DP/VIE/86/016) 25 September 1992

Dear MR. D. SMITH,

Letter of Authorization for Local Expenditure - 1993

For Project: DP/VIE/86/016

I would be grateful if you would arrange for your office, or Chief Technical Adviser for this project, to enter on the attached Letter of Authorization form the estimates of anticipated local disbursements for the project in 1993 in accordance with the notes on the reverse of the Letter of Authorization, and taking into account the following points:

(a) please refer to the latest project budget/revision for the project. Furthermore, it should be noted that over-estimation of expenditure in local currency will result in funds being blocked which might well be required for non-local expenditure.

(b) please return the attached form to reach my office not later than 31 October 1992

(c) the estimates will be reviewed in Vienna by the project's Substantive Officer, and the attached forms will then be finalized and signed by me and despatched to reach your office around the middle of December, 1992. Until signed forms have reached your office there is no authorization to incur local expenditure on the project in 1993.

Yours sincerely,

p A.R. Ingram
Chief
Financial Management
of Technical Cooperation

RES REP
UNDP
G.P.O. BOX 618, BANGKOK
THAILAND

U. N. I. D. O.

MOD 13 - 3 -

To: Resident Representative / Chief Technical Adviser

Title: PHARMACEUTICALS FROM ANIMAL BY-PRODUCTS

Project No: DP/VIE/86/016

From: Chief, Financial Management of Technical Cooperation

Subject: Letter of Authorization - Allotments for Local Expenditures 1993

You are hereby authorized as certifying officer, to expend during the year 1993 the following amounts in connection with the above mentioned project:

Budget line	Purpose of expenditure	US Dollars	
		$	
13-01-3	Secretarial assistance (incl. driver and or other locally recruited support personnel)		
15-01-3	Local travel of experts	~~1,500 USD~~	
33-01-3	In-service training (all costs except language training)	~~2,000 USD~~	
41-10-3	Consumable equipment and supplies, spare parts, periodicals, books; minor equipment (not exceeding a unit value of $500)	~~1,700~~ USD	700
51-10-3	Operation and maintenance of equipment (including project vehicle/s)	500 USD	500
51-40-3	Sundry (excluding hospitality)	300 USD	300
	TOTAL	~~6,000~~ USD	1,500

Note

(a) The Resident Representative is authorized, if in his/her opinion it is necessary, to provide the Chief Technical Adviser/Project Co-ordinator with petty cash advance up to 2.5 months estimated average expenditure to be incurred by him/her.

(b) Items of equipment to be imported under Field Purchase Orders are not covered by this Letter. Please refer to Handbook for UNIDO Field Staff, Chapter VII, Section A, 2(c), which also sets out the rules governing local purchase of equipment.

(c) The amounts you are authorized to spend on this authorization will be disbursed only in your local currency.

Date: _____ Certified: _____

Chief, Financial Management of Technical Cooperation

LOCAL DISBURSEMENTS (COVERED BY L/A.)

NOTES FOR RESIDENT REPRESENTATIVES/CHIEF TECHNICAL ADVISERS

Estimates of disbursements in local currency should not include expenditure on the following which are subject to specific authorization by UNIDO:

(1) International experts' services (budget line 11) - dealt with by UNIDO/IO/PRAS:

(2) International travel of project staff (budget line 15) - subject to prior approval by Substantive Officers and specific financial authorization by UNIDO/DA/FS:

(3) National experts' services (budget line 17) - subject to prior approval by Substantive Officers and specific financial authorization by UNIDO/IO/PRAS:

(4) Sub-contracts (budget line 21) - dealt with by UNIDO/DA/CONTR :

(5) Fellowships (budget line 31) and study tours (budget line 32) - dealt with by UNIDO/IO/HRD:

(6) Equipment (budget line 41) costing more than $500 per item - subject to prior approval by UNIDO/DA/PUR:

(7) Equipment (budget line 42) to be imported under Field Purchase Order - requires prior approval by UNIDO Substantive Officer and financial authorization by UNIDO/DA/FS (see Handbook for UNIDO Field Staff (issued 11 September, 1989) Chapter VII, Section A, 2(c)):

(8) Hospitality (budget line 51) - subject to approval by UNIDO Substantive Officers and specific financial authorization by UNIDO/DA/FS (see Handbook for UNIDO Field Staff, Chapter VIII, Section C, "Miscellaneous" (d)).

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1 Unit value has been adjusted to bring it into line with the current CCAQ definition of expendable and non-expendable property

Annex 5.17

RESIDENT REPRESENTATIVE
UNITED NATIONS
DEVELOPMENT PROGRAMME
27-29 PHAN BOI CHAU
VT HANOI / VIET NAM

SERVA
FEINBIOCHEMICA GmbH & Co

D-6900 HEIDELBERG 1
Carl-Benz-Straße 7
Federal Republic of Germany

TELEFON 06221/5020
TELEX 461709+461158
FAX 06221/502188+50211

SERVA FEINBIOCHEMICA GmbH & Co KG · POB 105260 · D-6900 Heidelberg 1

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION
VIENNA INTERNATL.CENTRE
P.O.BOX 300
A 1400 VIENNA

RECHNUNG INVOICE

Kunden-Nr./Customer No.	Datum/Date	Nummer/Number
0140030200	6.06.92	96107

Zahlungsbedingungen/Payment Terms: 30 days net

Your order No: 15-2-0522 P (J.R.Koellisch)
Date: 13.05.92 via Airfreight
C+F HO CHI MINH CITY/VIET NAM

38	30216		1	250 G	SODIUM TETRABORATE.DECA HYDRATE ANALYTICAL GRADE (BORAX) 284019000900	12,50	12
40	15165		2	250 G	BORIC ACID ANALYT.GRADE 281000000900	10,50	2
42	26882	X	2	500 G	X POTASSIUM IODIDE ANALYTICAL GRADE 282760000000	205,50	41
					Colli-Number: 2		
2	31439	K	1	25 G	X PANCREAS PROTEINASE A PORCINE CA.1 UNC-U/MG POWDER 350790000900	17,50	17
4	17160	K	1	5 G	a-CHYMOTRYPSIN F.BOVINE PANCREAS CA.45 U/MG POWD. 350790000900	209,00	20
6	37260	K	4	1 G	TRYPSIN BOVINE PANCREAS CA.30 U/MG 2xCRYST.LYOPH. SALT-FREE 350790000900 D	131,50	52
8	[illegible]	K	1	10 G	LIPASE FROM PORCINE PANCREAS 10-15 U/MG POWDER 350790000900 D	15,50	15
10	13418	K	1	25 G	a-AMYLASE FR.ASPERGILLUS ORYZAE 5 U/MG POWDER STANDARDIZED 350790000700	11,00	11
12	31820	K	1	5 G	PEPSIN PORCINE CA.15 MILLIANSON U/MG 2xCRYST. LYOPHIL. 350790000900	150,50	150

SERVA
EINMALIG · DREIMALIG

BfG-Bank Heidelberg, Kto-Nr./Acc. No. 530 28122 00 (BLZ 672 200 20) · Postgiroamt Karlsruhe 180 65-758
Unterer Bank Heidelberg, Kto-Nr./Acc. No. 0 477 400 (BLZ 672 700 03)

DM

ZESIDENT REPRESENTATIVE
UNITED NATIONS
DEVELOPMENT PROGRAMME
27-29 PHAN BOI CHAU
VT H A N O I / VIET NAM

SERVA
FEINBIOCHEMICA GmbH & Co

D-6900 HEIDELBERG 1
Carl-Benz-Straße 7
Federal Republic of Germany

TELEFON 06221/5020
TELEX 461709+461158
FAX 06221/502188+502113

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION
VIENNA INTERNATL.CENTRE
P.O.BOX 300

A 1400 VIENNA

RECHNUNG INVOICE

Kunden-Nr./Customer No	Datum/Date	Nummer/Number	Page
01400602003	6.08.92	96107	3

Zahlungsbedingungen/Payment Terms: 30 days net

Your order No: 15-2-0522 P (J.R.Koellisch)
Date: 13.05.92 via Airfreight
C+F HO CHI MINH CITY/VIET NAM

		14	10607	X	2	5 G	N-ACETYL-L-TYROSINE.ETHYL ESTER ANALYTICAL GRADE 292249900900	35,00	70,00
									2011,50

MARKS:
PROJECT: DP/VIE/86/015 - Pharmaceuticals from Animal-by Products.
Order-No: 15-2-0522 P

I. carton = 17,500 kg
II.carton = 0,600 kg

total 18,100 kg

Achtung! Attention!
bitte sofort bei +4°C lagern
please store at +4°C immediately

SERVA
EINMALIG·DREIMALIG

Units	Brutto/Gross W./kg	Warenwert/Value of Goods	Frachtkosten/Freight Costs	MWSt	%
3	18,100	2.011,50	255,00		

DM Gesamtbetrag/Total: 2.266,50

FACSIMILE

To : Mr. P. GILABERT, Programme Officer, UNIDO-Hanoi, Vietnam	Date 23July93 MSG No.	
	To Fax No 267484	
	Our Fax No +84 (8) 231834	
	Drafted by :	
From: Prof. Oleg Scedrov, CTA DP/VIE/86/016 UNDP, HoChiMinh City.	Authorized by :	
	Account: UNIDO	File: DP/VIE/86/016
Subject : Pharmaceutical Raw Materials from Slaughterhouse By-Products, DP/VIE/86/016	Total page(s) 01 *including this page*	

MESSAGE

Dear Mr. Gilabert,

In connection with the sensitive chemicals sent by Serva Co, Germany, which arrived to Hanoi on 17 July 1993, I would like to inform you that we did not receive them until now. The UNIDO, Vienna, message No. 5637 of 16 July 1993 reached me on 19 July 1993 at 5 p.m., only. The next day, 20 July 1993, I succeeded to phone to Mr. Tiep only at 5:30 p.m. and Mr Tiep promised to forward the above chemicals to HoChiMinh City, immediately. The chemicals in question still did not arrive in HoChiMinh City. During 21, 22 and 23 July 1993, it was impossible to reach Mr. Tiep by phone.

I would like to draw your attention that these Serva Co, chemicals are enzyme standards very sensitive to the higher temperature and must be kept at + 4° C. I am worrying about they could be destroyed at very high environment temperature in Hanoi.

Please send the Serva Co, chemicals in question to HoChiMinh City immediately.
Thank you for your understanding.

Yours sincerely,

(Prof. O. Scedrov)

Annex 5.19

DP/VIE/86/016 16 November 1991

Chemicals for the Quality Control of the Project Products

1)	Pancreatin from pig pancreas, reference standard, "Serva"	5 g
2)	Alpha-Chymotrypsin from bovine pancreas, reference standard, "Serva"	4 g
3)	Trypsin from bovine pancreas, reference standard, "Serva"	4 g
4)	Lipase from porcine pancreas, reference standard, "Serva"	2 g
5)	Alpha-Amylase, reference standard, "Serva"	2 g
6)	Pepsin porcine, reference standard, "Serva"	5 g
7)	N-Acetyl-L-tyrosine ethyl ester, p.a., "Serva"	10 g
8)	N-Benzoyl-L-arginine ethyl ester hydrochloride, p.a., "Serva"	10 g
9)	Casein, p.a., "Serva"	100 g
10)	Olive oil, p.a. (triolein for lipase assay)	2,000 ml
11)	p-Toluenesulfonyl-L-arginine methyl ester hydrochloride, p.a.	10 g
12)	Sodium taurocholate, reference standard	20 g
13)	Starch soluble, p.a., "Serva"	200 g
14)	Ethyl ether, p.a.	5,000 g
15)	Tris(hydroxymethyl)aminomethane, p.a.	1,000 g
16)	Trichloroacetic acid, p.a., "Serva"	1,000 g
17)	Gum arabic (Acacia), p.a., "Serva"	1,000 g
18)	Monobasic potassium phosphate, p.a.	1,000 g
19)	Anhydrous dibasic sodium phosphate, p.a.	1,000 g
20)	Iodine, p.a., "Serva"	200 g
21)	Sodium thiosulfate pentahydrate, p.a., "Serva"	1,000 g
22)	Hydrochloric acid, conc, p.a.	2,000 g
23)	Sulfuric acid, conc., p.a.	2,000 g
24)	Sodium hydroxida, p.a.	2,000 g
25)	Sodium chloride, p.a.	2,000 g
26)	Calcium chloride, dihydrate, p.a., "Serva"	5,000 g
27)	Methyl Red-Na-salt, p.a., "Serva"	25 g
28)	Methylene Blue, p.a., "Serva"	25 g

Additional Item List of Chemicals

29)	Cholic acid, reference standard	3 g
30)	Disodium tetraborate decahydrate, p.a.	200 g
31)	Boric acid, p.a.	500 g
32)	Enterokinase, p.a.	5 g
33)	Potassium iodide, p.a.	1,000 g
34)	Oxalic acid, p.a.	2,000 g
35)	Ethanol 99.5%, p.a.	3,000 g
36)	Maleic anhydride, p.a.	300 g
37)	Acetic acid, p.a.	5,000 g

Annex 5.20

Quality Control Chemicals, Glassware and Accessories

No.	Item	In	Quantity	Price US$ Unit	Price US$ Total	Supplier	Remarks
1	Trypsin, standard enzyme preparation (FIP controlled)	g	0.200	50	50	Prof.Dr. Lauwers, Centre for Standards, State University Gent, Wolterslaan 12, B-9000 Gent, Belgium	Estimated price
2	Chymotrypsin standard enzyme preparation (FIP controlled)	g	0.200	50	50		Estimated price
3	Enterokinase, standard enzyme preparation (FIP controlled)	g	0.500	50	50		Estimated price
4	Pancreatin, DAB, Ph.Eur., Ph.Helv., 4 x USP, Enzymes activity: Protease 1,400 FIP U/g, Lipase 30,000 FIP U/g, Amylase 30,000 FIP U/g, Merck Cat.No. 7133	g	10.00	50	50	E.Merck, P.O.Box 4119, D-6100 Darmstadt 1, Germany	
5	Casein to Hammarsten, Merck Cat.No. 2242	g	200.00	35	35	The same	
6	N-Benzoyl-L-arginine ethylester hydrochloride, research grade, Merck Cat.No. 1672	g	5.00	36	36	The same	
7	Potassium dichromate, GR volumetric standard, Merck Cat.No. 4868	g	100.00	14	14	The same	
8	Diethyl ether, extra pure, BP 88, Merck Cat.No. 926	lit	3.00	60	60	The same	
9	TLC precoated plates, glass, Silica gel 60 F_{254}, 10 x 20 cm, 50 plates in one package, Merck Cat.No. 5729	pcs	1	90	90	The same	
					US$ 435		

Items 1 to 9: US$ 435

No.	Item	In	Quantity	Price US$ Unit	Price US$ Total	Supplier	Remarks
10	L-Tyrosine, analytical grade, Serva Cat.No. 37540	g	25	10	10	Serva Feinbiochemica GmbH a. Co., P.O.Box 105260, D-6900 Heidelberg 1, Germany	
11	Disodium hydrogen phosphate x 2 H_2O, analytical grade, Serva Cat.No. 30200	g	500	14	14		
12	Tris(hydroxymethyl) aminomethane, Serva Cat.No. 37190	g	1,000	35	35	The same	
13	Flask volumetrical, 10 ml, TLOS, Zagreb, Croatia	pcs	4	20	80	TLOS Co., Radnička cesta 18, 41000 Zagreb, Croatia	
14	Flask volumetric, 25 ml, TLOS, Zagreb,Croatia	pcs	4	21	84	The same	
15	Microscope slides, 50 pcs in one box, TLOS, Zagreb,Croatia	box	1	1	1	The same	
16	Microscope cover glass, 200 pcs in one box, TLOS, Zagreb,Croatia	box	1	5	5	The same	
17	Funnel separatory Squibb, 100 ml, TLOS, Zagreb,Croatia	pcs	4	30	120		
18	Hamilton syringe, Series 700 SN, 250 µl, Bartelt Cat.No.80708	pcs	1	60	60	Bartelt GmbH, Johannagasse 36, A-1050 Wien, Austria	Estimated price
19	Digital burette, 25 ml, Bartelt Cat.No. Cat.No. 707426	pcs	1	90	90	The same	Estimated price

Grand total: US$ 934

Annex 5.21

Prof. O. Scedrov,
CTA DP/VIE/86/016,
UNDP HoChiMinh City

28 June 1993

Quality Control Expert Work Programme for Four Weeks

First week: Introduction of the up-to-date methods of the quality control of the pancreatin enzymes, protease, amylase and with stress to lipase, then chymotrypsin and trypsin, and dry bile. Training course for the local personnel using standard enzyme preparations with different dilutions.

Second week: Quality control tests of enzymes in raw materials from the "Vissan" slaughterhouse, pancreas of pigs and cattle, and cholic acid and dry matter in bile of pigs and cattle. Training of the local personnel.

Third and fourth week: Quality control of the final products received by processing of pancreatin, dry bile, chymotrypsin and trypsin on a laboratory and pilot plant scale. Quality control of semi products and raw products are included to reach the quality assurance.

Fourth week: Preparation of everyday quality control protocols for each one of raw materials, semi products and final products checked. Microbiological tests of final products, pancreatin, dry bile, chymotrypsin and trypsin performed at the Government Drug Quality Control Institute in HoChiMing City.

Agreed Mr. Tran Tuu, NPD

Prof.O.Scedrov, CT

Annex 5.22 ALPHABETICAL LIST OF COMPOUNDS

A
16515 Cetylpyridinium-chloride research grade

R 20/22 S 26
$C_{21}H_{38}N^+Cl^- H_2O$ M. 358.1 [123-03-5]

(1-Hexadecylpyridinium chloride) Min. 99% (titr.), MP 80-83°

100 g 13.50
500 g 75.80

A
16530 Cetyltrimethylammonium-bromide
cryst. pure

R 20/22 S 26
$C_{19}H_{42}N^+Br^-$ M. 364.5 [57-09-0]

(CTAB, Cetrimide, Cetrimonium bromide, Hexadecyltrimethyl ammonium bromide, Palmityltrimethylammonium bromide). Assay (titr.) min. 99%

50 g 11.20
500 g 75.80

B
70034 Cfo I solution

-20° C •

For details please refer to our special PROMEGA Molecular Biology catalogue. Your personal copy is available upon request

3 000 units 136.00

Chapman Agar
see 48090 Staphylococcus Medium 110
in special MICROBIOLOGY Section page 396

CHAPS
see 17038 3-[(3-Cholamidopropyl)dimethyl ammonio]-1 propanesulfonate page 59

CHAPSO
see 17035 3-[(3-Cholamidopropyl)dimethyl ammonio]-2-hydroxy-1-propanesulfonate page 59

Chelite P
see special ION EXCHANGERS Section page 492

Chemiluminescence ragents
see Luminarins®
For details please refer to our special IMMUNOLOGY Brochure. Your personal copy is available upon request

Chemotactic Peptides
see Formyl-L-methionyl Peptides
under Biologically Active Peptides
in special PEPTIDE Section page 330

CHES
see 17672 2-(Cyclohexylamino)-ethanesulfonic acid page 72

China Blue see 13645 Aniline Blue page 25

Chinidin see Quinidine

Chinin see Quinine

Chinon see Quinone

Chiral Phases for HPLC based on Silica
see under Si-Derivatives
in special LIQUID CHROMATOGRAPHY Section

A
16620 Chitin from crustacean shells research grade

[1398-61-4]

1 g 55.00
2.5 g 113.00
10 g 363.00

Chitosamine
see 22671 D-Glucosamine HCl page 124

B
16628 Chitosan pure

[9012-76-4]

10 g 8.90
50 g 24.80

A
16784 Chloramine T analytical grade

R 36/37/38 S 2-7-15
$C_7H_7ClNO_2SNa\,3H_2O$ M. 281.7 [127-65-1]

(N-Chloro-p-toluenesulfonamide Na-salt trihydrate) Min. 98% (titr.)

250 g 12.50
1 kg 38.00

A
16785 Chloramphenicol research grade

$C_{11}H_{12}Cl_2N_2O_5$ M. 323.1 [56-75-7]

(Chloromycetin, D-(threo)-2,2-Dichloro-N-[β-hydroxy-α-(hydroxymethyl)-β-(4-nitrophenyl)ethyl]acetamide, D-(threo)-2,2-Dichloroacetamido-1-(4-nitrophenyl)-1,3-propanediol). Assay: 278 nm min. 98%

See also under Antibiotics in special CELL CULTURE Section page 385

10 g 14.00
100 g 52.00
Favorable bulk prices

Chloramphenicol Acetyltransferase
For details please refer to our special PROMEGA Molecular Biology catalogue. Your personal copy is available upon request

Annex 5.23

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Job Description
DP/VIE/86/016/17-01

Post title	**National Consultant, Biochemist**
Duration	**5m/m**
Date required	**22 July 1993**
Duty station	**Ho Chi Minh City, Vietnam**

Purpose of project : Establishment of a production unit for manufacture of enzymes, hormones and other bioactive substances in UNIPHA from by-products (animal glands and tissues) from slaughterhouses of Ho Chi Minh City.

Duties The National Consultant will be expected to do the following duties in close cooperation with the National Project Authorities and UNDP, Hanoi :

1. Conduct and carry-out the experiments of the project on the laboratory scale. Try to obtain better yield and higher activities of all bioactive substances produced by the Project : pancreatin, dry bile, chymotrypsin and trypsin.
2. Introduce new technologies, especially ultra-filtration techniques for the production processes, emphasizing on chymotrypsin and trypsin production.
3. Develop new bioactive substances from slaughterhouse by-products such as pepsin, peptone, thyroid powder, etc.
4. Include bioactive substances extracted and isolated from other local natural sources as sea animals and plants. For instance : chitin from shrimp, amylase from rice and sweet potato, bromelin from pineapple, etc.
5. As a possibility of extension of the above work in the future and after successful completion of the experiments on the laboratory scale for the introduction of the new products and new technologies, arrange the experiments on a pilot plant scale, using the existing equipment of the project.
6. Prepare a detailed report of the findings, results of themission and recommendations for the future actions.

Qualifications

Biochemist with extensive experience in research, development and production of enzymes, hormones and other bioactive substances originated from slaughterhouse by-products, sea animals and plants

Language English.

Background information

Vietnam has an abundant source of animal by-products, such as different animal organs, viscera, blood, bones, etc,. which is presently wasted. The collection of by-products can be feasibly carried out only in modern slaughterhouses of international standard, which have a slaughter capacity big enough for animal blood and gland collecting in the quantity needed for viable production of some bioactive substances from animal sources such as pancreatin, dry bile, or at least the blood and carcass meal production.

Ho Chi Minh City has two large slaughterhouses of international standard, the Vissan and the Cau Tre slaughterhouses. The Vissan slaughterhouse has the highest capacity in the South East Asia, yielding some thousand tons of by-products every year. It was constructed between 1969 and 1974 in cooperation with the Federal Republic of Germany. The possible daily output is 7200 pigs or 900 oxen and buffaloes. The Cau Tre slaughterhouse was established in 1982 in cooperation with France. Its daily slaughter capacity is 600 pigs. Both slaughterhouses have high hygienic conditions, constant supervision of veterinary doctors, own quality control departments, freezing facilities (deep freezer at $-45^{\circ}C$, storage at $-20^{\circ}C$ and chilling room at $4^{\circ}C$) and their products are exported.

The pharmaceutical industry in Vietnam has long ago started to produce speciality products from animal organs. 30 years ago, the liver extract of Philatov and some nutritive products from ox blood were introduced. These products however, do not meet the present international requirements, since they were manufactured by direct use of animal organs and blood.

The aim of this project is to introduce the modern biochemical separation techniques in Vietnam and to commence the manufacture of highly purified enzymes, hormones and other bioactive substances from which modern drug formulations can be prepared.

From the different slaughterhouse by-products, sea animal and plants, a large number of bioactive substances can be prepared. However, the immediate objective of the project is to develop technological capabilities in a country, all the bioactive substances that can be used as pharmaceutical raw materials, cannot be taken into consideration. More reasonably, some essential products should be selected and more products added later on .

INSTRUCTIONS
Please answer each question clearly and completely. Type or print in ink. Read carefully and follow all directions.

UNIDO
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
PERSONAL HISTORY

Do Not Write In This Space

1. Family name	First name	Middle name	Maiden name, if any
HUYEN	NGUYEN	DINH	

2. Date of birth: Day	Month	Year	3. Place of birth	4. Nationality(ies) at birth	5. Present nationality(ies)	6. Sex
03	Dec.	1936	Viet Nam	Vietnamese	Vietnamese	mal

7. Height	8. Weight	9. Marital status:
1m70	70kg	Single ☐ Married ☒ Separated ☐ Widow(er) ☐ Divorced ☐

10 Entry into service of UNIDO might require assignment and travel to any area of the world in which the Organization might have responsibilities. Have you any disabilities which might limit your prospective field of work or your ability to engage in air travel?
YES ☐ NO ☒ If "yes", please describe.

11 Permanent address	12. Present address *(if different)*	13. Office Telephone No.
44/5E Nguyen Trong Tuyen p.8,Phu nhuan,t/p HCM. VietNam. Telephone No. 440865	Telephone No.	353193

14. Have you any dependants? YES ☒ NO ☐ If the answer is "yes", give the following information:

NAME	Date of birth	Relationship	NAME	Date of birth	Relationship
Le Ngoc Bich	1942	Wife			
Nguyen Hoang Yen	1965	Daughter	Nguyen Hoang Long	1967	Son
Nguyen Hoang Anh	1975	Son			

15 Have you taken up legal permanent residence status in any country other than that of your nationality? YES ☐ NO ☒
If answer is "yes", which country?

16 Have you taken any legal steps towards changing your present nationality? YES ☐ NO ☒
If answer is "yes", explain fully:

17. Are any of your relatives employed by a public international organization? YES ☐ NO ☒
If answer is "yes", give the following information:

NAME	Relationship	Name of international organization

18. What is your preferred field of work?
Production and utilisation of Enzymes

19 Would you accept employment for less than six months? YES ☒ NO ☐

20 Have you previously submitted an application for employment with UNIDO? If so, when? No

21. KNOWLEDGE OF LANGUAGES. What is your mother tongue?

OTHER LANGUAGES	READ		WRITE		SPEAK		UNDERSTAND	
	Easily	Not Easily	Easily	Not Easily	Fluently	Not Fluently	Easily	Not Easily
English	+			+		+		+
French	+				+		+	
Russian	+		+		+		+	

22. For clerical grades only
Indicate speed in words per minute:

	English	French	Other languages	
Typing				
Shorthand				

List any office machines or equipment you can use:

23 EDUCATION. Give full details – *N.B. Please give exact titles of degrees in original language. Please do not translate or equate to other degrees*

A. University or equivalent

NAME, PLACE AND COUNTRY	ATTENDED FROM/TO		DEGREES and ACADEMIC DISTINCTIONS OBTAINED	MAIN COURSE OF STUDY
	Mo./Year	Mo./Year		
Moscow State University SNG	1955	1961	Biochimist&Physiologist	Biochimistry and Physiology of plant
Moscow State University	1968	1971	KAHDUDAT HAYK(Ph.D)	Protein synthesis in infected plant tissues.
Orsay University-France	1983	1984	Sci.Collaborator	Information Genetic

B. Schools or other formal training or education from age 14 (e.g. high school, technical school or apprenticeship)

NAME, PLACE AND COUNTRY	TYPE	ATTENDED FROM/TO		CERTIFICATES or DIPLOMAS OBTAINED
		Mo./Year	Mo./Year	
Han Thuyen-Viet Bac. VN	High school	1948	1954	Graduation

24. List professional societies of which you are a member and indicate activities in civic, public or international affairs

Association of Biology in HoChiMinh city-Chairman.

Committee of Biotechnology of HoChiMinh city-Vice president.

Committee of the State Programme " Theoritical Research in the Natural Sc.

25 List any significant publications you have written *(Do not attach)* Production and Utilisation of Bromelin for hydrolyse fish-protein.

Isolation and Characterization of Chitin & Chitosan from Shimrp Shell.

26 EMPLOYMENT RECORD: Starting with your present post, list *in reverse order* every employment you have had. Use a separate block for each post. Include also service in the armed forces and note any period during which you were not gainfully employed. If you need more space, attach additional pages of the same size. Give both gross and net salaries per annum for your last or present post.

A. PRESENT POST *(LAST POST, IF NOT PRESENTLY IN EMPLOYMENT)*

FROM	TO	SALARIES PER ANNUM		EXACT TITLE OF YOUR POST:
Month/Year	Month/Year	Starting	Final	
1990	to date		3700000 d	Dean of the Faculty Biology of University of HoChiMinh city.

NAME OF EMPLOYER:	TYPE OF BUSINESS:
University of HoChiMinh City Ministry of Education and Training.	Administration-Teaching-Research.
ADDRESS OF EMPLOYER: 227 Nguyen van Cu q.5 t/p HCM	NAME OF SUPERVISOR: Nguyen Ngoc Giao
	NO AND KIND OF EMPLOYEES SUPERVISED BY YOU: 60 teachers and Researchers
	REASON FOR LEAVING:

DESCRIPTION OF YOUR DUTIES

Give lectures : Biochemistry for students second year .

Molecular Biology for students fourth year.

Production and Application Enzymes for undergraduate students

Conduct Postgraduate thesis.

Administrate the Faculty.

8. PREVIOUS POSTS *(IN REVERSE ORDER)*

FROM	TO	SALARIES PER ANNUM		EXACT TITLE OF YOUR POST:
Month/Year	Month/Year	Starting	Final	Head of the Departement Biochimistry
1979	1990			

NAME OF EMPLOYER:	TYPE OF BUSINESS:
University of HoChiMinh city	Teaching-Research
ADDRESS OF EMPLOYER: 227 Nguyen van Cu,q.5 t/p HCM.	NAME OF SUPERVISOR: Ly Hoa
	NO. AND KIND OF EMPLOYEES SUPERVISED BY YOU: 10 teachers & Researchers
	REASON FOR LEAVING: For upgrading

DESCRIPTION OF YOUR DUTIES

Give lectues in Biochemistry

Conduct students to make thesis of graduation

FROM	TO	SALARIES PER ANNUM		EXACT TITLE OF YOUR POST:
Month/Year	Month/Year	Starting	Final	Teacher. Chief of Laboratory Experimental Biol.
1961	1978			

NAME OF EMPLOYER:	TYPE OF BUSINESS:
Hanoi University	Teaching- Research
ADDRESS OF EMPLOYER: Truong Dai hoc Tong hop Hanoi 90 Nguyen Trai-Hanoi.Viet nam.	NAME OF SUPERVISOR: Phan huu Dat
	NO. AND KIND OF EMPLOYEES SUPERVISED BY YOU: 6 teachers & Researchers
	REASON FOR LEAVING: Organise Bioch. Dpt at HCM Univ.

DESCRIPTION OF YOUR DUTIES

Give lectures in Plant Physiology.

Instruct the Practical work for students

Research.

FROM	TO	SALARIES PER ANNUM		EXACT TITLE OF YOUR POST:
Month/Year	Month/Year	Starting	Final	

NAME OF EMPLOYER:	TYPE OF BUSINESS:
ADDRESS OF EMPLOYER	NAME OF SUPERVISOR:
	NO. AND KIND OF EMPLOYEES SUPERVISED BY YOU:
	REASON FOR LEAVING:

DESCRIPTION OF YOUR DUTIES

FROM	TO	SALARIES PER ANNUM		EXACT TITLE OF YOUR POST:
Month/Year	Month/Year	Starting	Final	

NAME OF EMPLOYER:	TYPE OF BUSINESS:
ADDRESS OF EMPLOYER	NAME OF SUPERVISOR:
	NO. AND KIND OF EMPLOYEES SUPERVISED BY YOU:
	REASON FOR LEAVING:

DESCRIPTION OF YOUR DUTIES

27. Have you any objections to our making inquiries of your present employer? YES ☐ NO ☒

28. Are you now, or have you ever been, a permanent civil servant in your government's employ? YES ☒ NO ☐

If answer is "yes", when? From 1961 to date as civil servant in Vietnamese government 's employ

29. REFERENCES: List three persons, not related to you, who are familiar with your character and qualifications.

Do not repeat names of supervisors listed under Item 26

FULL NAME	FULL ADDRESS	BUSINESS OR OCCUPATION
Nguyen van Uyen	27/29 Hau giang,q.TanBinh	Director of Center of Biotechnology of HCM city.
Ngo ke Suong	01 Mac dinh Chi,q.1 HCM	Director of Inst.Tropical Biology.
Trinh xuan Vu	26/37 Nguyen binh Khiem q.1 t/p HCM	Vice President of Inst. Agro-Forestry HCM city.

30. State any other relevant facts. Include information regarding any residence outside the country of your nationality.

None

31. Have you ever been arrested, indicted, or summoned into court as a defendant in a criminal proceeding, or convicted, fined or imprisoned for the violation of any law *(excluding minor traffic violations)*?

YES ☐ NO ☒

If "yes", give full particulars of each case in an attached statement.

32. I certify that the statements made by me in answer to the foregoing questions are true, *complete* and correct to the best of my knowledge and belief. I understand that any misrepresentation or material omission made on a Personal History form or other document requested by the Organization renders a staff member of UNIDO liable to termination or dismissal

DATE July 22 , 1993 SIGNATURE: Uyen

N.B. You will be requested to supply documentary evidence which supports the statements you have made above. Do not, however, send any documentary evidence until you have been asked to do so by the Organization and, in any event, do not submit the original texts of references or testimonials unless they have been obtained for the sole use of the Organization.

The maximum period of validity for a Personal History form is two years.

Annex 5.25

DP/VIE/86/016

July 9, 1993

Dear Mr MICHAEL J. MEIXNER
UNIDO Country Director

Subject: Tripartite Review Final Meeting

We would like to inform you that according to our estimations the commissioning trials and running in of the project pilot plant could not be completed before the end of August 1993. It would be therefore more convenient to postpone the Tripartite Review Final Meeting to the end of September 1993. when the project implementation process is completed.

With best regards.

Yours sincerely,

Tran Tuu
National Project Director

Mr MICHAEL J. MEIXNER
UNIDO Country Director

cc: Prof.Hoang Anh Tuan
Committee of S & T
Hochiminh City

Prof.Scedrov. CTA

930813 10.55
0805812732+
812732 UNIPHA VT+
21246 PLIVA RH

13.8.93. TXNO 1078 /OLEG SCEDROV

PROF. OLEG SCEDROV,
CRNOJEZERSKA 18,
41090 ZAGREB, CROATIA
CTA DP/VIE/86/016

12 AUGUST 1993

MR. TRAN TUU,
NPD DP/VIE/86/016,
UNIPHA DIRECTOR GENERAL,
HO CHI MINH CITY, VIETNAM.
FAX: 84-8-224408,
TELEX: 812732 UNIPHA VT

AFTER A HAPPY RETURN HOME I WOULD LIKE TO THANK YOU FOR YOUR VERY KIND AND USEFUL COOPERATION, FOR THE EXCELLENT DINNER, AND ESPECIALLY FOR VERY NICE PRESENTS TO ME, MARCELA AND TO NICK AND MARCELA FROM TRA THANH.
I DISCUSSED WITH DR. CSIZER IN VIENNA THE BEST TIME FOR THE CLOSING TRIPARTITE REVIEW MEETING (TPR). DR. CSIZER EXPECTS TO PARTICIPATE THE MEETING HIMSELF AND SUGGESTS THE FIRST HALF (1 TO 15) OF ANY MONTH BECAUSE OF HIS DUTIES IN VIENNA IN THE SECOND HALF. I KNOW YOU AS A REALISTIC LEADER AND AM SURE YOU WILL NOT SPEED UP THAT MEETING.IT IS BETTER TO FINALIZE OUR PROJECT COMPLETELY INCULDING TRIAL RUNS AND HAVE THE TPR MEETING AFTER THAT. MAY I SUGGEST YOU A NEW TERM IN OCTOBER OR EVEN NOVEMBER 1993.
ACCORDING TO DR. CSIZER YOUR DECISION TO VISIT GEDEON RICHTER CO. IN BUDAPEST BY THE MIDDLE SEPTEMBER IS A GOOD IDEA.
THE GEDEON RICHTER CO. A CENTURY AGO STARTED TO PRODUCE EXTRACTS FROM PLANTS AND ANIMALS. THEY HAVE ALWAYS UP-DATED THEIR PRODUCTION PROCEDURES. TODAY THEY HAVE VERY MODERN MANUFACTURING PROCESSES OF VERY PURE BIOACTIVE SUBSTANCES, AS ENZYMES, HORMONES AND ALKALOIDS. DR. CSIZER SUGGESTED YOU TO SEND, AS SOON AS POSSIBLE, A LETTER ABOUT THAT TO:
ING. IVAN DOZSA, DIRECTOR FOR TECHNICAL COOPERATION, GEDEON RICHTER LTD., BUDAPEST 10, P.O.BOX 27, H-1475, HUNGARY, FAX: (36-1) 1571578. I INFORMED DR. CSIZER THAT YOU ASKED ME TO JOIN YOU IN BUDAPEST. DR. CSIZER ADVISED, IT WILL BE USEFUL THAT ASK UNIDO, VIENNA (DR.CSIZER), FOR MY OFFICIAL PARTICIPATION AS THE CTA DURING YOUR VISIT TO THE GEDEON RICHTER CO. KINDLY SEND SUCH A LETTER TO UNIDO AS EARLY AS POSSIBLE. JUST A FEW LINES WILL BE SUFFICIENT.
PLEASE, INFORM ME AT LEAST TWO WEEKS IN ADVANCE ON THE EXACT DATE, TIME AND FILIGHT NUMBER OF YOUR ARRIVAL TO BUDAPEST SO THAT I COULD MEET YOU AT THE AIRPORT.
BEST REGARDS FROM ME, MY WIFE AND SON TO YOU, YOUR NICE FAMILY TO PROF. HUYEN, AND TO ALL MY GOOD FRIENDS AT THE PROJECT AND IN THE UNIPHA.

YOURS SINCERELY,

PROF. OLEG SCEDROV)

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE
P.O. BOX 300, A-1400 VIENNA, AUSTRIA
TELEPHONE: 211 310 TELEGRAPHIC ADDRESS: UNIDO VIENNA TELEX: 135612 uno a FAX: 232156

DP/VIE/86/016 - Pharmaceutical from Animal By-Products

LETTER OF APPRECIATION

Vienna, 5 August 1993

TO WHOM IT MAY CONCERN

This is to certify that Mr. Tran Ngoc An has been assigned to the project DP/VIE/86/016 since 1 September 1990 as English Interpreter and Translator. He carried out this assignment in the period from 1 September 1990 to 2 August 1993, during the four split missions of Professor Oleg Scedrov, Chief Technical Adviser (CTA), two missions of Mr. Jan Fryda and two missions of Mr. Ulf Strenger, the Plant Engineers of this project. Mr. An has performed his duties to the best of his abilities resulting in an excellent communication between the international experts (CTA and Plant Engineers) and Mr. Tran Tuu, the National Project Director (NPD) and his staff. Mr. An's dedication, efforts covering overtime work and last but not least his fluency in English have positively and significantly contributed to the implementation of the project.

Based on the above brief performance appraisal obtained from the CTA, it is highly recommended to employ Mr. Tran Ngoc An whenever an English interpreter with high motivation and experience is required.

Dr. Zoltan Csizer
Senior Interregional Adviser
Department of Industrial Operations

INFORMATION

To: All members of the Project Management Team

From: Tran Tuu
National Project Director
VIE\86\016

Subject: **International experts work time**

During the mission of UNIDO's international experts at VIE/86/016 project site for the supervision of installation, commissioning trials and running in of the plant, in view to ensure close cooperation and efficacy in project management, and following UNDP guide-lines, the following has been agreed:

1. The working place is located in the project premises at 90 Hung Vuong Street, District 5, HCMC, where the Chief Technical Adviser and Project Experts will be present every day, following the work plan, if they do not have work to do with other institutions (e.g. slaughter houses, local manufacturer). Any change to the scheduled work plan will be notified 2 days in advance for proper arrangements.

2. The working hours of the experts at the working place:

from 08:00 AM to 11:30 AM in the morning
from 13:00 to 16:30 in the afternoon
(if needed, might be delayed until 17:00).

3. To drive the experts from their hotel to the working place and back to the hotel, the project car should be at the experts' disposal 15 minutes before the beginning and the end of above mentioned work time. For any other needs not mentioned in the work plan, upon the experts' request, the NPD will make available arrangements.

4. Any suggestion should be discussed in the regular weekly meetings on Thursdays, except for urgencies.

We should be thankful to all members of the Project Management Team to follow these agreements in due to successful implementation of the project.

National Project Director
VIE/86/016

Tuu

Received
17 May 93
at 2:15 p.m.

From: [illegible]
CTA DP/VIE/86/016 - 115 - HCMCity, 7 July 1993

Annex 5.29

To: Mr. Tran Tuu,
NPD DP/VIE/86/016

Dear Mr. Tran Tuu,

I am constrained to draw your attention again, and now in written form, that the Project car belongs to the Project during the lifetime of the Project. The car can be used only for the needs of the Project.

Several times the Project car was used by you for various meetings that were not connected with our Project. It happened that I must expect the car half an hour, one hour and even more. Sometimes I complained. Yesterday at 2.30 p.m. I asked for the Project car to drive me to the UNDP Office at 4 p.m. The Project car did not arrive even at 5 p.m. and after one hour waiting I was driven on the back of a motobike.

My stay in Ho Chi Minh City is very limited and waiting for the Project car is a waste of my time, which is very expensive for the Project.

Please, avoid such things.

With kindest regards,

Yours sincerely.

(Dr. N. Siedrow)

Annex 5.30

New Priority List of the Additional Equipment of the Project

No.	Item	Pcs.	Price US$ Unit	Price US$ Total	Supplier	Remarks
1	Air conditioner	3	660	1,980	Local supply HoChiMinh City	
2	Water bidistilling unit, 4 lit/h, Pula, Croatia	1	4,960	4,960	Hospitalija d.d., Amruševa 6, 41000 Zagreb, Croatia	Invoice Annex 5.31, Leaflet Annex 5.32.
3	Manometer Vacuummeter, 0 to 520 hPa empty, Cat.No. 1565100, TLOS, Zagreb, Croatia	2	74.25	160.50	The same	Invoice Annex 5.33, Leaflet Annex 5.34.
4	Pump vacuum rotating, 4 m3/h, 0.3 mbar, including (1+25=) 26 lit vacuum oil K2, Kambič, 68333 Semič, Slovenia	1	2,476	2,476	The same	Invoice Annex 5.35.
5	Vacuum drier VS-50, 50 lit, 2 x 10^{-2} mbar, Kambič. 68333 Semič, Slovenia	1	8,230	8,230	The same	Invoice Annex 5.36, Leaflet Annex 5.37.
6	Disperser Polytron, Basic equipment PT 2000, 27,000 r.p.m.,to 2,000 ml, Kinematica AG Cat.No. 9010026,	1	1,246		Donau Trading AG, CH-8045 Zuerich, Switzerland	
	Dispersing device PTA 10S, Kinematica AG Cat.No. 9110024	1	790	2,036		
			US$	19,842.50		
7	Freeze drier A6412022 LYOPH. EM 5 SL, 5 lit, including accessories	1	24,818.94	24,818.94	OSI HoChiMinh Ville, Vietnam	Invoice Annex 5.38.
8	Tablet film coating unit including accessories RAMA COTA Model 27", Thai	1	26,000	26,000	NEO UNICAP Co., LTD., HoChiMinh City, Vietnam	Invoice Annex 5.39, Leaflet Annex 5.40.

Annex 5.31

HOSPITALIJA d.d.

Amruševa 6, Zagreb - CROATIA
Phone: 041/451-444, Fax: 041/432-166
Telefax: 21455 HOSPI HR

BANK:

UNIDO VIENNA INTERNATIONAL CENTER
P. O. Box 300
V i e n n a
Austria

PROFORMA
INVOICE No: 64-517 /E

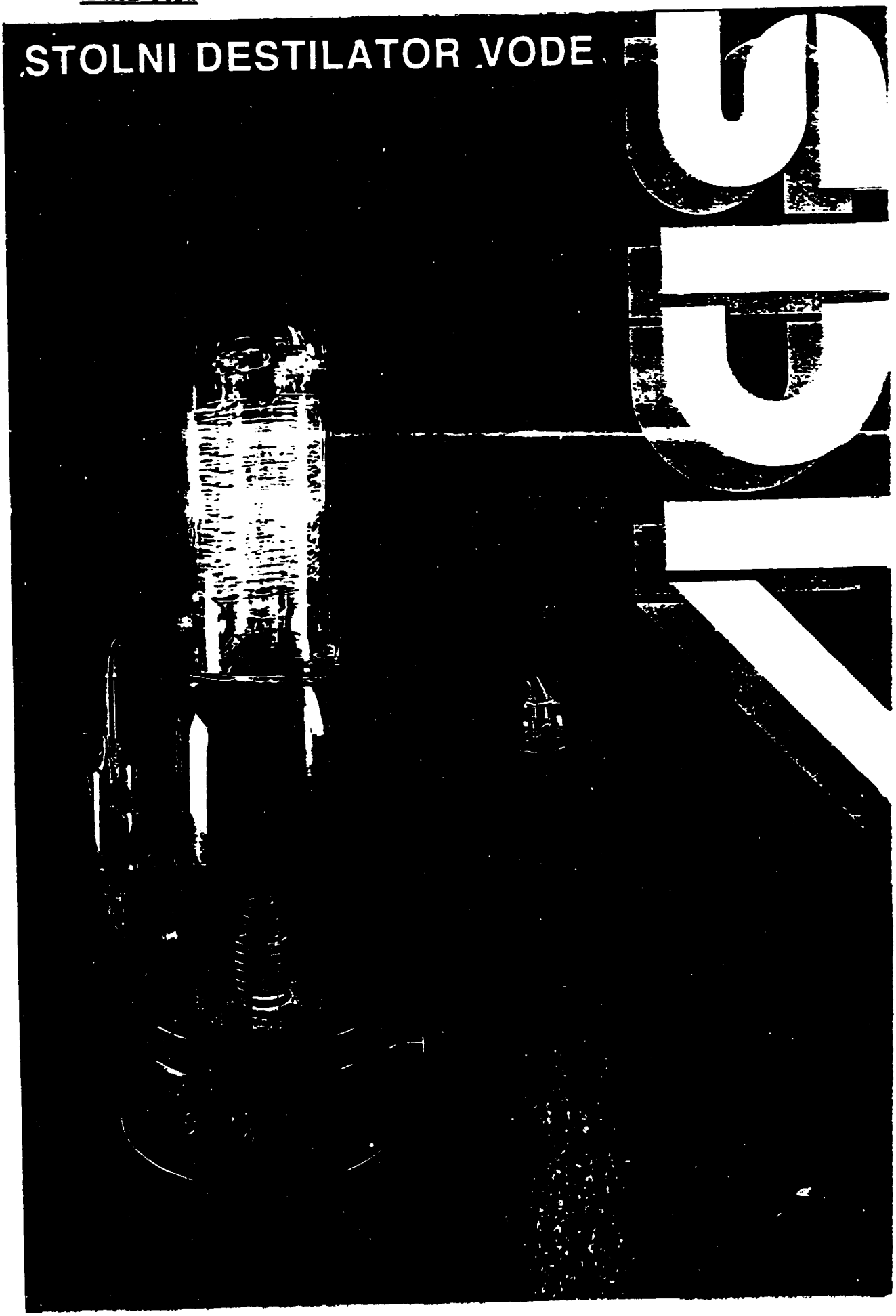
YOUR ORDER Project DP/VIE/86/016
OUR REF 64-517/ VG/V

DATE / 7th September 1993

ITEM	Quantity	DESCRIPTION	USD UNIT PRICE	USD TOTAL
1.	1 piece	**WATER BI-DISTILLATION UNIT Bench Top size** Production Capacity 5l/h fed by water-line Construction made of borosilicate glassware with overflow device for both normal and distilled water - heating resistors made of stainless steel, complete with electro-regulation input power 3500W + 3500 W for 220V /50 Hz single phase	4.690,00	4.690,00
		TOTAL CIP to Ho Chi Min City Airport..... USD		4.690,00

Delivery time : within 4 weeks on receipt of payment
Packing : two wooden cases, dimensions each / 360 x 350 x 900 mm
Nett weight : 30 kg
Gross weight : 65 kg
Payment : in advance
Validity of the Proforma Invoice : until 1st October 1993

H O S P I T A L I J A d.d.


STOLNI DESTILATOR VODE

SDV STOLNI DESTILATORI VODE

Racionalizacija laboratorijskog posla zahtijeva proizvodnju baznih aparata, koji će udovoljiti najnovijim znanstvenim i tehničkim standardima.

Ovi principi su uzeti u obzir prilikom razvijanja naših stolnih destilatora za vodu.

Stolni destilatori serije SDV izrađeni su u tri osnovne veličine i razlikuju se po kapacitetu, i to:

- SDV-2 – 2 l/h destilata
- SDV-5 – 5 l/h destilata
- SDV-10 – 10 l/h destilata

Karakterizira ih cijeli niz novih konstrukcionih rješenja i prednosti:

- visoka sigurnost u radu
- visoki stupanj efikasnosti
- minimalni utrošak struje i rashladne vode
- autoreperacija (autoispiranje)
- lako održavanje
- visoki kvalitet destilirane vode
- destilat je oslobođen pirogenih tvari i sterilan je,
- kvalitet destilirane vode udovoljava potrebama i zahtjevima analitičara, fiziokemičara te farmakologa.

KONSTRUKCIJA:

Stolni destilatori za vodu – SDV – sastoje se iz 4 podgrupe i to:

1. Kućište – postolje
2. Elektro-grupa sa regulacijom
3. Evaporator i kondenzator sa sistemom za opskrbu vodom te odvodom destilata.
4. Posuda za sakupljanje destilata.

Elektro-grupa, koja je smještena u kućištu sa pripadajućim regulacionim sklopom, izdvojena je od staklenog dijela, evaporatora i kondenzatora, pomoću PTFE izolacionog sloja.

Grijači iz nerđajućeg materijala prolaze (smješteni su) u evaporacionom dijelu (PTFE).

Za napajanje služi voda, koja prolazeći kroz kondenzator djelomično se predgrijava i kroz eksterni regulator nivoa vode napaja aparat.

Dobiveni destilat sakuplja se u predlošci – boci sa tubusom.

PRINCIP RADA:

Vode za napajanje, koja je predgrijana u toplotnom izmjenjivaču (kondenzatoru) prolazi kroz kontrolnik nivoa (regulator) u posudu za isparavanje (evaporator), gdje se isparava.

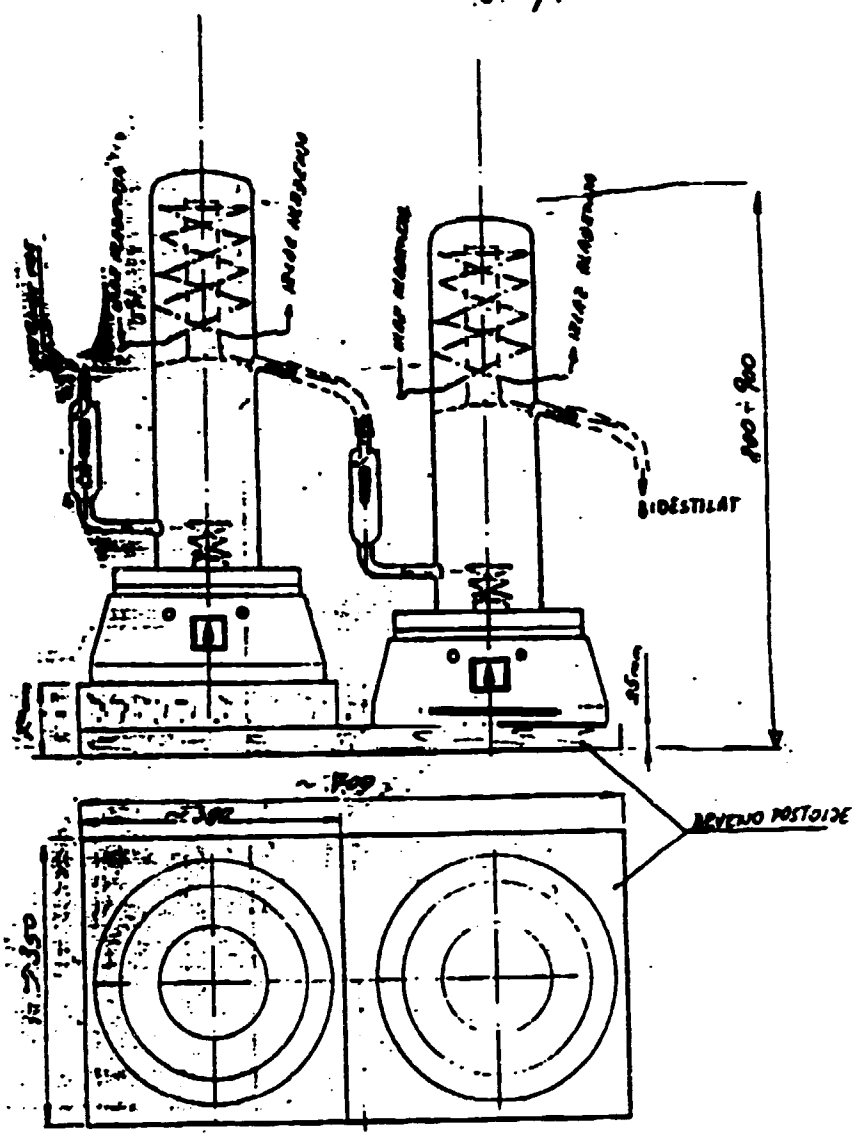
Prolazeći kroz kondenzator, pare se kondenziraju i slijevaju u sabirni sud.

TABELARNI PRIKAZ KARAKTERISTIKA I PODATAKA ZA STOLNE DESTILATORE

TIP / TEHNIČKI PODACI	SDV-2	SDV-5	SDV-10
Materijal i snaga grijača	Č-4572 1500 W	Č-4572 3500 W	Č-4572 2 x 3500 W
Elektro-priključak	7A; 220 V – šuko-utikač – fiksni vez	16A; 220 V – šuko-utikač – fiksni vez	16A; 380 V – fiksni vez
Kapacitet	2,0 l/h DEM-1577,63	5,0 l/h DEM - 1992,79	10,0 l/h DEM - 2491,0
Dimenzija	250x250x550	300x300x800	350x350x950
Težina praznog aparata	cca 12 kg	cca 17 kg	cca 25 kg
Temperatura izlaznog destilata	cca 50° C	cca 50° C	cca 50° C

STOLNI BIDESTILATOR VODE

5 l/h



HOSPITALIJA d.d.
Amruševa 6, 41000 ZAGREB - CROATIA
Phone +38/41/451 444
Telex 21445 hospit rh Fax +38/41/432 166

Annex 5.33

HOSPITALIJA d.d.
Amruševa 6, Zagreb - CROATIA
Phone: 041/451-444, Fax: 041/432-166
Telefax: 21455 HOSPI HR

UNIDO VIENNA INTERNATIONAL CENTER
P.O.Box 300
V i e n n a
A u s t r i a

BANK:

PROFORMA
INVOICE No: 64-517/A

YOUR REF: Ref: Project DP/VIE/86/016
OUR REF 64 - 517 / VG/V

DATE / 1st September,1993

ITEM	Quantity	DESCRIPTION	USD UNIT PRICE	USD TOTAL
1.	2	Vacuummeter for the range 0-520 hPa empty Cat.No. 1565100 (without mercury)	74,25	148,50
				148,50
		Airport Warehouse Handling		12,00
		Total FCA Airport Zagreb	**USD**	**160,50**

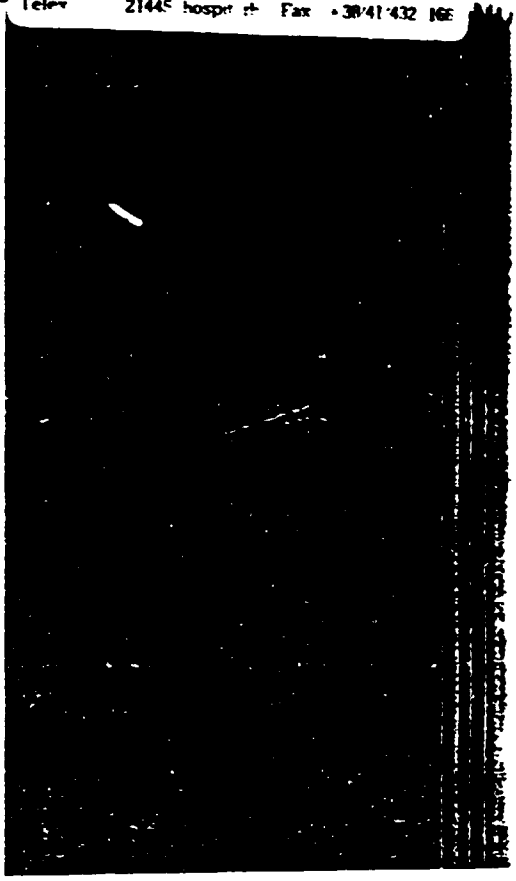
Delivery Time: within 3 working days on receipt of payment
Packing : 2 boxes
Dimension : 1200 x 200 x 20 mm
Gross Weight : 4,50 kg
Payment : in advance
Customs Tariff : 9026.203
Note : Here above mentioned "FCA" means Prof.Ščedrov will take over the goods at the Airport as the cabine luggage.

Validity of the Prof.Invoice: until 1st October,1993

H O S P I T A L I J A d . d .
Z a g r e b

Annex 5.34

HOSPITALIJA d.d.
Amruševa 6, 41000 ZAGREB - CROATIA
Phone +38/41/451 444
Telex 21445 hospr ci Fax +38/41/432 166



15 651 00 *
Manometar – Vakuummetar
Manometer – Vacuum-meter

15 651 00	Za područje mjerenja For the measuring range	0–529 h Pa 0–520 h Pa
	Vanjski promjer kapilare Outer diameter of the capillary	mm 8
	Razmak između krakova Distance between arms	mm 20
	Veličina daščice Size of the wooden back	mm 1000×70×10

HOSPITALIJA d.d.
Amruševa 6, Zagreb – CROATIA
Phone: 041/451-444, Fax: 041/432-166
Telefax: 21455 HOSPI HR

BANK:

UNIDO VIENNA INTERNATIONAL CENTER
P.O. Box 300
Vienna
Austria

PROFORMA
INVOICE No: 64-517 /E

YOUR ORDER Project DP/VIE/66/016
OUR REF 64-517/VG/V

DATE / 1st September, 1993

ITEM	Quantity	DESCRIPTION	USD UNIT PRICE	USD TOTAL
1.	1 pc.	Vacuum rotating Pump 4 m^3/h including 1 l vacuum,oil K2 Final vacuum : 0,3 mbar Installed Power: 0,2 kW Supply : monophase 220 V/50 Hz Dimension: 300 x 160 x 250 mm	1.560,00	1.560,00
2.	25 l	Vacuum Oil K2 for vacuum pump in canister of 25l	17,00	425,00
				1.985,00
		Air freight and Insurance ...		491,00
		TOTAL CIP to Ho Chi Min City Airport	**USD**	**2.476,00**

Delivery time : within 45 days on receipt of payment
Packing : Gnomo cartons
Gross weight : approx. 35 kg
Payment : in advance
Validity of the Proforma Invoice: until 1st October, 1993
Note : HOSPITALIJA reserves the right to change prices in case of a selective order .

HOSPITALIJA d.d.

Annex 5.36

HOSPITALIJA d.d.

Amruševa 6, Zagreb - CROATIA
Phone: 041/451-444, Fax: 041/432-166
Telefax 21455 HOSPI HR

BANK:

PROFORMA
INVOICE No: 64 - 517/c

UNIDO VIENNA INTERNATIONAL CENTER
P. O. Box 300
V i e n n a
Austria

YOUR ORDER Project DP/VIE/86/016
OUR REF 64 - 517 /VG/V

DATE / 1st September, 1993

ITEM	Quantity	DESCRIPTION	USD UNIT PRICE	USD TOTAL
1	1	VACUUM DRIER VS- 502 with built in vacuum pump, complete Working place volume: 50l Final vacuum : 2 x 10^{-2} mbar Supply : 220 V/50 Hz	8.230,00	8.230,00
		TOTAL CIP Ho Chi Min City Airport	USD	8.230,00

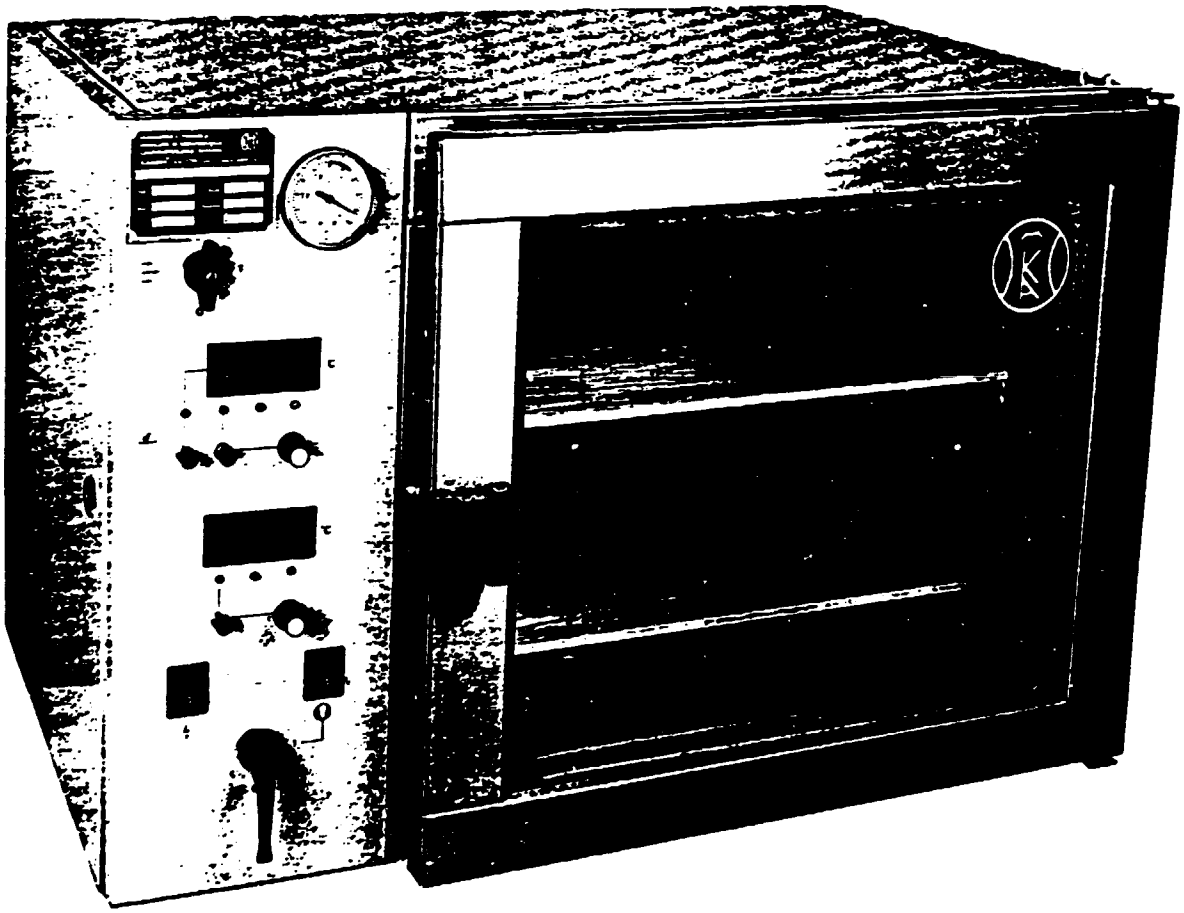
Delivery time : within 45 days on receipt of payment
Packing : case made of chip-wood
Gross weight : 80 kg
Payment : innadvance
Validity : until 1st October 1993

H O S P I T A L I J A d.d.
Z a g r e b

Kambič

Laboratorijska oprema

Vakuumski sušilniki



VAKUUMSKI SUŠILNIKI

VAKUUMSKI SUŠILNIKI proizvodnje KAMBIČ so najprimernejši za sušenje temperaturno občutljivih materialov. Zaradi vakuuma v sušilniku se močno zniža temperatura vrelišča tekočin, kar povzroči veliko hitrost izparevanja in krajši čas sušenja kot v običajnih sušilnikih. Istočasno pa preprečujejo vsakršno oksidacijo sušenega materiala. Poleg prikaza temperature posamezne police pri ogrevanih policah, imajo sušilniki možnost direktnega merjenja in prikaza temperature v sušilnem materialu s posebno sondo.
Sušilnike odlikuje sodobna konstrukcija, enostavno vzdrževanje in dolga življenjska doba.
Na željo kupca izdelujemo tudi druge velikosti vakuumskih sušilnikov ogrevanih z različnimi mediji in opremljeni z različnimi vrstami vakuumskih črpalk.

TEHNIČNI PODATKI:	TIP	VS-50	VS-50S
Zunanje mere	mm		
širina		730	730
višina		510	510
globina		525	525
Notranje mere	mm		
širina		405	405
višina		340	340
globina		370	370
Volumen	L	50	50
Police			
velikost (šxg)	mm	320x390	320x390
število vgrajenih/max. število		2/2	2/2
gretje polic		—	*
Elektro priključek			
priključna napetost	V	220	220
priključna moč	W	1520	1920
temperaturno območje	°C	tA-200	tA-200
točnost temperature		2%	±0,2°C
digitalni prikaz temperature		—	*
elektronska regulacija temperature		*	*
temperaturna sonda		PT100	PT100
prikaz temperature polic		—	*
prikaz temperature produkta		—	*
vakuumska črpalka		—	*
vakuum meter		*	*
notranja osvetlitev		□	□
Vrata			
enojna		*	*
vgrajeno steklo		*	*
Material			
notranje ohišje		CrNi	CrNi
zunanje ohišje		Poc.	Poc.
vrata		steklo	steklo

*Legenda: tA = temperatura okolice +5°C, — = ni grajeno, □ = možna vgraditev, * = vgrajeno;*

VAKUUMSKA TEHNIKA
Izdelava in servisiranje laboratorijske opreme
KAMBIČ ANTON
Sela 4/A
68333 SEMIČ, SLOVENIJA
Tel., Fax.: 068/56-200

Distributer:

Proizvodni program
inkubatorji, sterilizatorji, sušilniki, avtoklavi, lyofilizatorji, keramični mlini, naprave za vakuumsko destilacijo odpadnih emulzij, vakuumski sušilniki, zamrzovalne skrinje za ultra nizke temperature, vodne kopeli, ejektorske vakuum črpalke, olja za pogon difuzijskih in rotacijskih vakuum črpalk.

VACUUM DRIERS

The VACUUM DRIERS made by KAMBIČ are most suitable for drying of temperature sensitive materials. Due to the vacuum inside the drier the liquid boiling point temperature is considerably reduced, which results in high evaporation rate and shorter drying time as with ordinary driers. At the same time they prevent from any oxidation of the dried material. In addition to the temperature display relating to individual heated shelves the driers may provide direct temperature measurement and display, obtained through a special probe applied in the dried material.

The driers excel for their modern design, simple maintenance and long life.

On customer's demand we can also provide other vacuum drier sizes, heated with different media and fitted with different vacuum pump types.

TECHNICAL DATA	TYPE	VS-50	VS-50S
External dimensions	mm		
Width		730	730
Height		510	510
Depth		525	525
Internal dimensions	mm		
Width		405	405
Height		340	340
Depth		370	370
Volume	l	50	50
Shelves			
Size (w x d)	mm	320x390	320x390
Max. number of built-in shelves		2/2	2/2
Heating of shelves		--	*
Electric connection			
Connecting voltage	V	220	220
Terminal power	W	1520	1920
Temperature			
Temperature range	oC	tA-200	tA-200
Tolerance		2 %	±0.2 oC
Digital temperature display		--	*
Electronic temperature control		*	*
Temperature probe		PT100	PT100
Shelf temperature display		--	*
Product temperature display		--	*

Vacuum pump		*
Vacuum meter	*	*
Internal illumination	O	O
Door		
Simple	*	*
Built-in glass	*	*
Material		
Internal housing	CrNi	CrNi
External housing	galv.	galv.
Door	glass	glass

Key to symbols:

tA = ambient temperature +5 oC
-- = not built-in
   = possible building-in
* = built-in

Production Programme:

incubators, sterilizers, driers, autoclaves, lyophilizators, ceramic mills, waste emulsion vacuum distillation equipment, vacuum driers, ultra-low temperature chest freezers, water baths, ejector vacuum pumps, diffusion and rotation vacuum pump driving oils.

HOSPITALIJA d.d.
Amruševa 6, 41000 ZAGREB - CROATIA
Phone: +38/41/451 444
Telex: 21445 hospit rh Fax: +38/41/432 166

OSI Ho Chi Minh Ville
Vinmedimex II (Mr Hung)
246 Cong quynh Street
HO CHI MINH VILLE - VIETNAM
T°1 : 398412/449 Fax : 325953 Télex : 811287

Annex 5.38

HOCHIMINHville July 21st 1993

Mr. SCEDROV
UNDP/UNIDO
PROJECT VIE 88-016

N°93/194

SUBJECT: Your inquiry concerning the system of LYOPHILISATOR.

1)	A6412022 LYOPH. EM 5 SL avec bain de congel. (5litres)	13.140,00 US
2)	A6482010 POMPE PASCAL MOD.2010 (Vaccum pump)	2.367,00 US
3)	A6488885 SEPARATEUR DE BROUILLARD avec anneau et collier DN 25	177,84 US
4)	A6482760 RACCORD POMPE A VIDE - LYOPHIL. (Connections pump & lyoph.)	92,70 US
5)	A6412033 VANNE AUTOMATIQUE (d'isolement de pompe)	810,00 US
6)	A6412034 LEST D'AIR AUTOMATIQUE (pour dégazage huile de pompe)	720,00 US
7)	A6412035 CONTROLE AUTOMATIQUE	864,00 US
8)	A6411021 ENCEINTE DE BOUCHAGE SOUS VIDE	3.834,00 US
9)	A6411019 ADAPTATEUR POUR ACCESSOIRES (pour lyophilisateur 3 litres)	277,00 US
10)	A6411017 ENCEINTE A 3 PLATEAUX. (pour lyophilisateur 5 litres)	2.124,00 US
	AIR PACKING	16,20 US
	AIRFREIGHT AND INSURANCE	396,00 US
	TOTAL	24.818,94 US
	(taxe free)	C.I.F VTN BYAAIR

Annex 5.39

บริษัท นีโอ ยูนิแคป จำกัด
NEO UNICAP CO.,LTD.

HO CHI MINH CITY
JULY 24,1993

TO : WHOM IT MAY CONCERN

Dear Sir,

We are very pleased to quote the Price of TABLET FILM COATING MACHINE with the conditions and terms as follows :

Brand : RAMA COTA Model : 27"

Origin : Thai

Unit Price : USD 26,000 (USD Twenty six thousand only)

Specification and Technical Data :

* Coating Unit :
  - Drum Diameter : 685 mm
  - Batch Size : 15-20 Kg
  - Pan Speed : 5-18 rpm
  - Drive motor : 0.75 Kw
  - Dimension : (WxDxH) 94x80x153 Cm
* Hot Air Unit :
  - Max. Temp. 80°C
  - Heater : 12 Kw
  - Motor : 1.5 Kw
* Fan Unit ;
  - Fan Motor : 2.25 Kw
  - Floor Space (LxW) 1.5x3.5 m

Delivery time :

04-05 months after receipt of L/C or deposit

Payment term :

by opening Irrevocable confirmed restricted L/C in the favor of : NEO UNICAP CO., LTD at the Thai Military Bank, Head Office :
Address : 3,000 PAHOLYOTHIN ROAD, Bangkok, Thailand
with the following schedule :

บริษัท นีโอ ยูนิแคป จำกัด
NEO UNICAP CO.,LTD.

- 30% at the time L/C is opened.
- 20% after informations of the shipment
- 50% after installation.

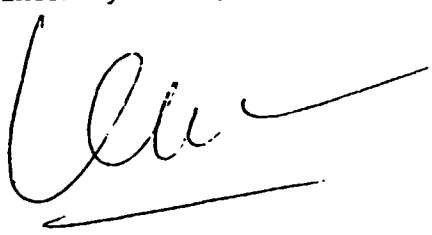
or transfer to NEO UNICAP account No. 3624.10.3761429 at EXIMBANK HCMC

- 30% in advance
- 20% after informations of the shipment.
- 50% after installation.

Besides that, We can supply further requirements.

Thanks and Best Regards,

Sincerely Yours,



(FOR MR. SUWAT KHERNAMNUAI)

BANGKOK OFFICE 13/75 SOI SUPAPONGSE 3 SRINAKARIN ROAD BANGKOK 10260 THAILAND TEL 3615621-4 FAX: (662) 3615621-4
HCMC ADDRESS 19 PHAM NGOC THACH DISTRICT 3, HOCHIMINH CITY SR VIETNAM TEL 222022, 225768

Rama Cota

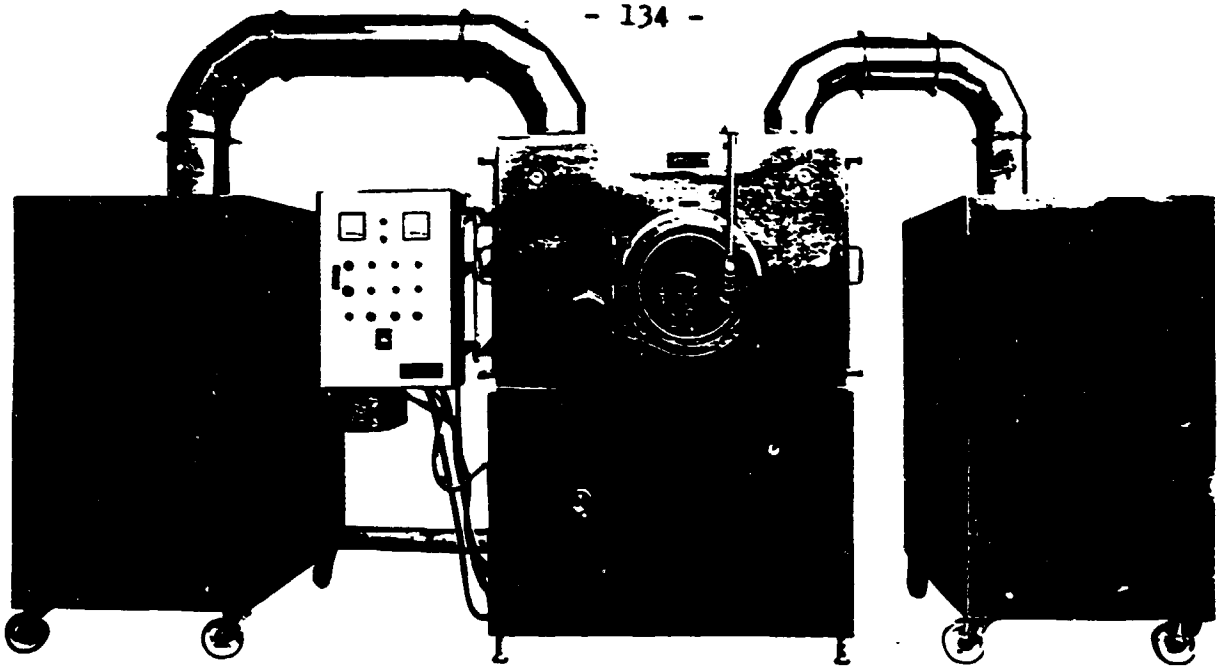
Rama Cota

TABLET FILM COATING UNIT

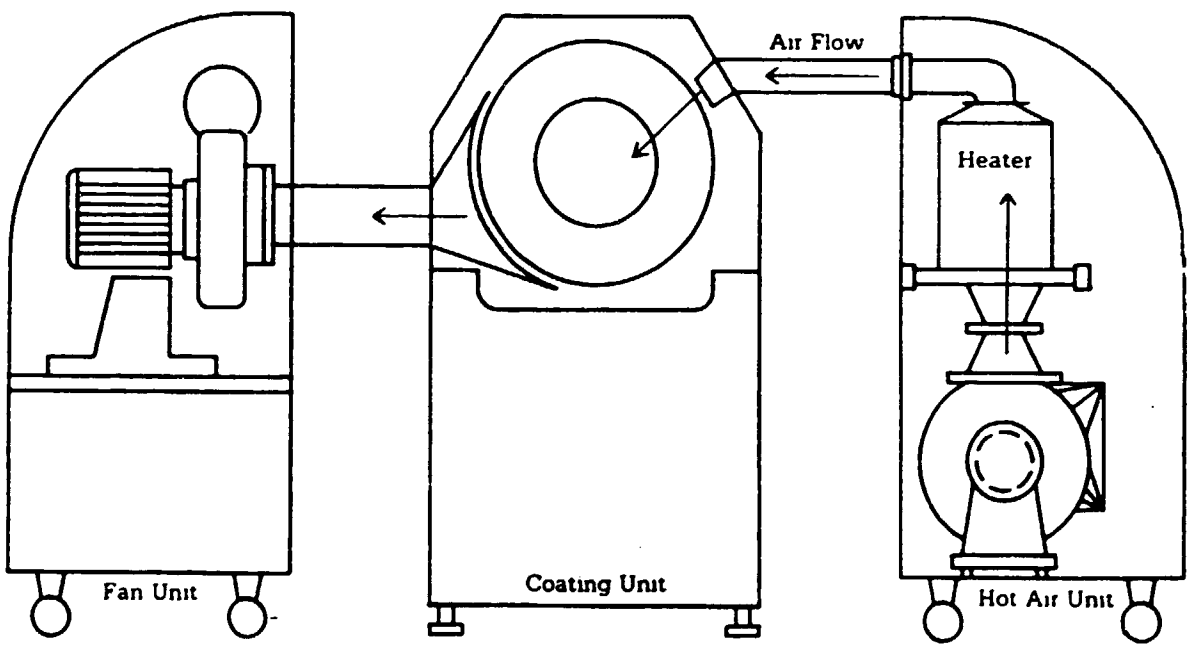
COMPLETELY ENCLOSED SYSTEM — ASSURES QUIETNESS, SAFETY, AND SANITATION

EASY TO OPERATE AND TO CLEAN

HIGH EFFICIENCY MOST SUITABLE FOR BOTH AQUEOUS AND ORGANIC SOLVENT BASED SYSTEM



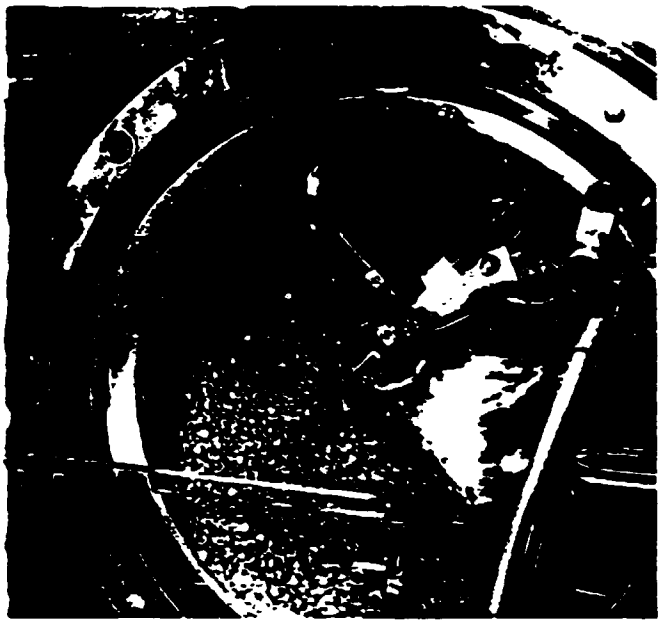
The coating pan, sink, cabinet and all parts in contact with the product are made of stainless steel. Side vented coating pan of the RAMA COTA type provides a simple yet sophisticated approach to the film coating process which is both safe and efficient.



The totally enclosed air supply spray and exhaust systems are arranged in a straight line thus removing inefficiencies due to turbulance while providing a safe working environment.

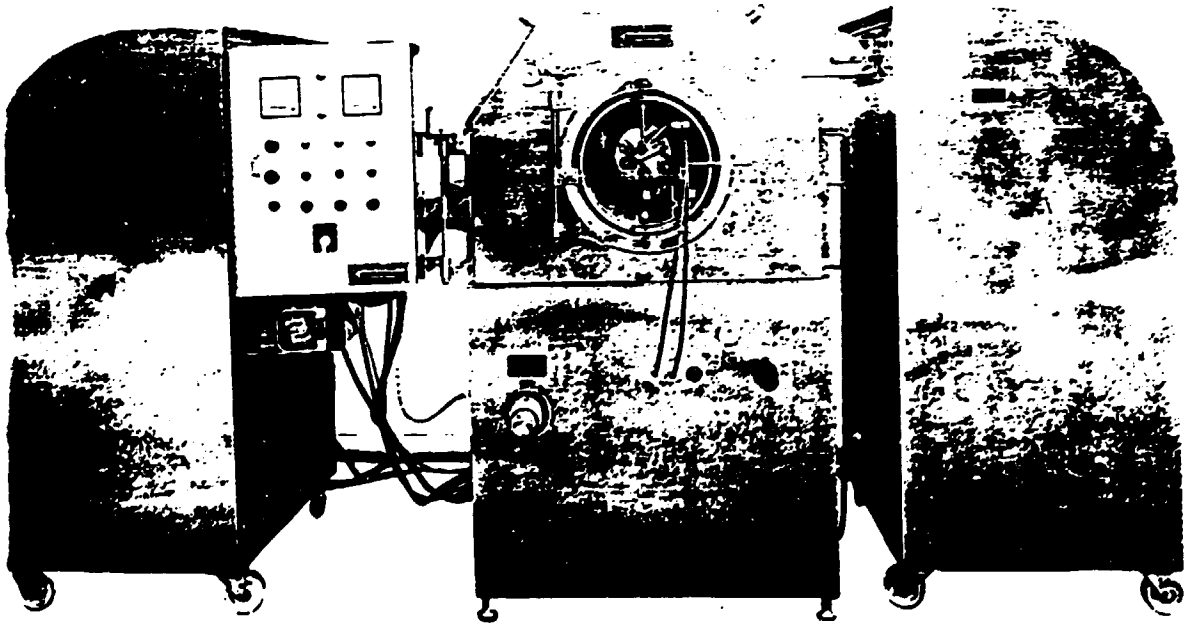
The same straight line arrangement leads to very little loss of coating material, a maximum of 5 percent compared with up to 25 percent in other equipments.

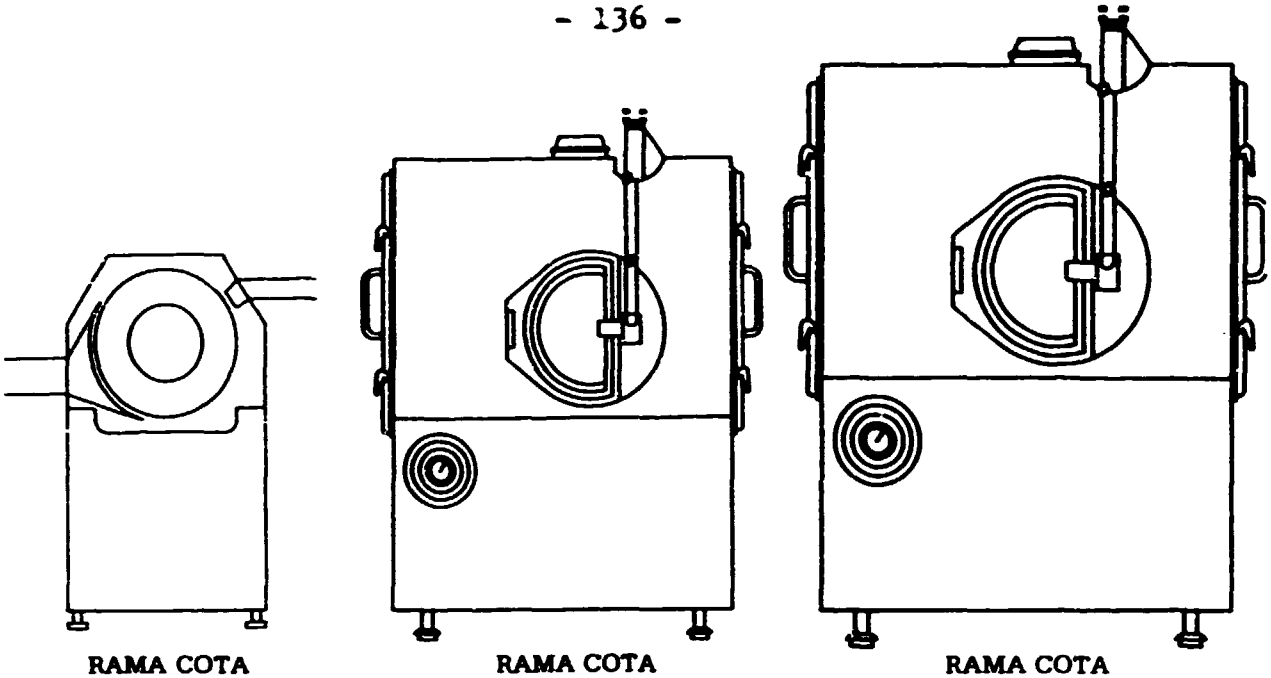
Film coating is fast in this type of pan with process times as short as thirty minutes being reported where very high temperature drying air is used.



The spraying system is provided with complete control and treatment of compressed air such as air filter, mist separator, pressure regulator as standard equipments to ensure quality of the air for better film coating result. Both air filter and mist separator are "maintenance free" since they have their own auto-drain cups for automatic releasing of the filtrate.

Four different models are being supplied for various batch sizes starting from "R & D" model for product trial carrying a batch size of 5-7 kg. up to max of 200 kg per batch of our HICOATA" 50"





RAMA COTA 27"

RAMA COTA 39"

RAMA COTA 50"

Model		R&D	RAMA COTA 27"	RAMA COTA 39"	RAMA COTA 50"
[redacted]					
Drum Diameter	mm	406	685	990	1.270
Batch Size	kg	5–7	15–20	70–100	150–200
Pan Speed	rpm	0–25	5–16	2–9	2–9
Drive Motor	kw	0.2	0.75	1.5	2.25
Dimension (W×D×H)	cm	100×65×137	94×80×153	136×110×190	165×145×210
Hot Air Unit					
Max. Temp.	C	80	80	80	80
Heater	kw	8	12	22.5	45
Motor	kw	0.37	1.5	1.5	3.75
[redacted]					
Fan Motor	kw	0.75	2.25	5.6	7.5
Floor Space (L×W)	m	1.0×1.5	1.5×3.5	2.0×4.5	2.5×6.0

AGENT :

Rama Cota

N.R. NARONG MACHINERY CO.,LTD.

Sale Office
522/101 - 103 Soi Songprang, Asoke - Dindang Road
Tel 246-1546, 246-0097, Fax (662) 2465297
Telex 84952 RAMACHE TH Cable Ramachem

Factory
768 Mu 8 Soi Tanpuying, Teperuk Road
North Samrong, Samutprakarn, Thailand
Tel 384-0539, 394-3533 Fax (662) 3841945

Substantive Backstopping Officer's Comments

The CTA's report is a very extensive review of the project. It covers the collection and quality of animal glands, gives an assessment of the conditions of the slaughter-houses, appraises the performance of project personnel and subcontractors, analyzes the local manufacturing of equipment, reports on the current status of installation and commissioning, reviews the progress made in setting up the biochemical and quality control laboratories, etc. He is very critical at many points but it should be taken into consideration that his comments, remarks are based on a lifetime personal working experience in this very special area of the pharmaceutical industry.

It should be pointed out that his assessment is fully shared by the BSO whose expert opinion is also based on personal working experience of more than 25 years in the industry. The project implementation, in spite of the considerable delays, is progressing well but, now, it has reached a very critical milestone of its development. To explain the current situation the objectives of the original project concept and those of the present one should be compared and analyzed.

The immediate objective of the project is to establish an experimental production unit for manufacture of bioactive substances from by-products of slaughter-houses by collection of animal organs of high quality. It has, however, been emphasized that this project cannot aim at import substitution but it might be economized through the export earning of the collected animal glands and/or bulk intermediates.

Since its start, the development and implementation of the project has been hampered due to the lack of supportive industry. In the very early development phase of the project, UNIDO made several attempts to attract the interest of the industry, for cooperation, but these attempts remained in vain. Spofa in the former Czechoslovakia, Rhone-Poulenc, Servier and Seppim in France, Gedeon Richter in Hungary and Galenika and Pliva in the former Yugoslavia were those companies who were contacted, but their answer were negative. The BSO believes that it is needless to emphasize the advantages that a cooperating industry can provide at an early stage of this project.

It should be made clear, that without the advice and guidance of industry, or experts with personal industrial experience of a longer period of time, the individual international consultants and experts in spite of their high professional reputation have somewhat different views with regard to such a development project, therefore time to time they contradict each other, which consequently creates some difficulties in the project implementation.

The reason of this type of contradictions is very clear. The main issue is that the technologies are rarely compatible with each other and they are not freely available either. These characteristics which are the main features

of the pharmaceutical industry should, very seriously, be taken into consideration, since the national project authorities has changed the main direction of the project. In addition of the experimental production, which was the original objective of the project, a pilot plant and even a manufacturing scale facility has been established. It should be stressed that the BSO in principle agrees with this new direction of the project, as a logical step for further development but he also feels that the technological and market criteria of this very specific area of the pharmaceutical industry should be met.

The second issue is that the quality requirements for raw materials of animal origin have significantly been changed since 1989. The quantity, that would be made available by the slaughter-houses for the project, is also questionable. Therefore, the BSO has serious doubts that the products to be manufactures have any export potential in 1994 and beyond.

The most interesting parts of the CTA's report are which deal with the diversification of the product-mix of the project by using the facilities on a time sharing basis to manufacture products of plant and animal origin, including marine life forms.

It seems to be very likely that processing of the slaughter-house by-products will not utilize the capacities built in. In order to make the BIOPHA/UNIPHA financially sustainable the nominal capacities built in should be fully utilized.

At this stage of the project, it is strongly recommended that the national project authorities should take a decision in which way they want to further develop BIOPHA. Do they seek for developing a long term cooperation with an industry? Are they looking for private partners? Do they want to use BIOPHA as a technology application and development centre serving the domestic pharmaceutical industry? All these and several other question could be raised but could only be answered if the achievements and results of the project would be consolidated.