

Sub: Invitation For Investment Opportunities

The Ministry of Industry and Minerals / Republic of Iraq has the pleasure to announce several Investment Opportunities to rehabilitate and modernize its selected factories in different industrial sectors.

Specialized International Companies, Businessmen, and Financers are invited to participate in these Opportunities that may achieve economic feasibility and create rapid positive revenues.

The concept is that the investor and his supporting team shall rehabilitate and manage the plant on his account against a share of production achieved for a negotiated period of time.

The strength points of these opportunities are:-

- 1- High local demand of the products.
- 2- Availability of trained and experienced manpower.
- 3- Availability of local raw materials.
- 4- Adequate investment legislations and favorable terms for agreement.
- 5- Fast return on investment.

The Ministry expresses its willingness to assist you with all the necessary clarification as well as facilitating necessary visits to the factories (if required).

You are kindly requested to submit your offers within the indicated validity (Tuesday, June 5,2007) :-

Contact Details

Tel: 00964 1 8162006 Ext. 3127 , 3122

E-mail :invest@industry.gov.iq

Mobile: 00964 7901 371 867

Address: Ministry of Industry / Investment Department .

Nidhal Street

Baghdad – Iraq

Republic of Iraq
Ministry of industry & Minerals
Investment Department



Investment File

For Rehabilitation & Upgrading of
Missan paper Plant
State company for Paper Industries

March/2007

Index

- I- Investment Opportunity
- II- General Conditions.
- III- Data & Scope of Work.

- 1-Introduction.**
- 2-Cement Sacks Paper Machine Line.**
- 3-Board Machine Line.**
- 4-Eggs trays Machine Line**
- 5-Industrial Services units.**
- 6-Technical Status.**
- 7-Competitive Conditions.**
- 8-Final products Specifications.**
- 9-Environmental requirements.**
- 10- The Required Investment.**
- 11-Legal Frame Work.**
- 12-Privileges for Investor.**
- 13-Investor Obligations.**

Appendixes

- * Appendix No.(1) : Cement Sacks Paper Machine Line.**
- * Appendix No.(2) : Board Machine Line.**
- * Appendix No.(3) : Eggs Trays Machine Line.**
- * Appendix No.(4) : Industrial Services Units.**
- * Appendix No.(5) : Investment Law No. (13) of 2006**

PART I

INVESTMENT OPPORTUNITY

Rehabilitation & Upgrading of Missan Paper Plant

Invitation:

The Ministry of Industry and Minerals (MIM) / Investment Department invites Investors and international Competent Companies to invest in rehabilitation and operation of Missan Paper Plant located 20 km South of Missan Governorate/400km South of Baghdad. That is to finance and implement the activities to rehabilitate the plant in accordance with modern Paper Industry technology, Manage and operate the plant at the investor account against share of product accomplished.

History of the plant

- 1- The Cement sacks paper Machine line were installed in 1979 by Esherwyes GmbH/Germany with a capacity of 140 ton/day, started production beginning of 1980.
The Machine stopped for the time being required Upgrading in addition to install new waste board treatment line.
- 2- Board Machine line, installed and operated by Esherwyes GmbH /Germany in 1980 with a design capacity of 18000 ton/year. The machine stopped, required upgrading to use higher percentage of Waste papers as raw material.
- 3- Eggs Trays Machine line, Installed 1979, operated 1980 with a design capacity of 33000 000 Eggs Tray/year. The machine stopped due to requirement for Rehabilitation & Maintenance.
- 4- Industrial Services Units all stopped, needs Rehabilitation & Maintenance.

Concept and Evaluation Criteria:

The evaluation criteria for selecting the investor shall be :-

- 1- The share of MIM as a percentage of production offered by the Investor.**
- 2- Scope of Rehabilitation work.**
- 3- Obligation of the Investor to assure availability of electrical power generation.**
- 4- Obligation of the Investor to keep the existing workforce of the plant paying their salaries, allowances & incentive according to the increase in production.**
- 5- The period planned to implement the upgrading and rehabilitation activities to conclude the targeted production capacity of the plant.**
- 6- Period of the investment Agreement.**
- 7- Maximum production capacity obliged to be fulfilled by the Investor.**
- 8- The investor financial capability to fulfill his under-taking to rehabilitate the plant supported by :-**
 - Financial statements for the last three years.**
 - Supporting letter from Banks and financial houses to show the investor financial capabilities.**
 - Documents on the financial capabilities of the investor partners or the supporting parties.**
 - Documents on financial facilities that Banks may grant to the investor.**
- 9- The technical and managerial capacity of the investor and his Supporting partners to achieve the Upgrading and rehabilitation works (Engineering Companies, Vendors, Site work Contractors...etc), operate and manage the plant after completion of rehabilitation works and organizational structure of the investor/group of investors to be provided.**
- 10-Similar experience of the investor and his supporting companies in similar works with documental reference.**

The Project Advantages

- 1- Availability of good experience labors of different levels in the Area.**
- 2- The growing demand of plant products in local market.**
- 3- Availability of waste papers as raw material.**
- 4- Adequate security of Missan Governorate.**

The Investor Obligations:

1st: It is important to the interested investor, before and after purchasing the investment file, to visit the plant to have detailed information on site condition, the prevailing conditions of the plant, look at any necessary drawings, and present any request for clarification and questions to the specialized team on the address mentioned below. According to detailed investigation, in addition to the informations and general conditions, The Investor might Submit his investment offer which should contain detailed suggested rehabilitation works, expected investment amount, rehabilitation duration, rehabilitation procedures, intermediate & final targeted production capacities, investment package agreement period, percentage of product share, philosophy and detailed procedure for managing & operating the factory before and after completion of rehabilitation activities until the end of investment agreement.

2nd: The investor should consider the followings according to the investment file conditions:

- 1. The investment package should assure the installation of Electric generation unit with a capacity capable to operate all factory units, buildings and utilities.**
- 2. It is preferable for the interested investors to arrange for a seminar showing his experience and points of view for the Rehabilitation approach.**
- 3. The investment package should include obligation to keep & getting use from the current available factory employee and assure the payment of their salaries & incentives.**
- 4. The Rehabilitation package should be fulfilled on all factory production units, utilities, other facilities.**

Measures

- 1. The Interested investor may send his authorized representative to
1-1:Ministry of Industry & Minerals (MIM)/ Investment Dept.
OR 1-2: State Company for paper Industries their detail
contacts here below.**

To purchase the investment file against the amount USD 250 (only two hundred and fifty USD) starting from 15/4/2007.

- 2. Please contact the following address for any information or clarifications:**

Ministry of Industry & Minerals/ Investment Department.

AL- Nidhal Street.

Baghdad /Iraq

Tel : 009641 8166040

009641 8162006/ Ext: 3127, 3122

Mobile:00964 7901371867

E-mail: invest@industry.gov.iq

- 3. The Investment Package proposal to be submitted to the Ministry of Industry & Minerals on or before 5/6/2007.**

Part II

(For plants rehabilitation agreement)

- 1. Scope of rehabilitation works:**
- 2. The Agreement concept:**
- 3. Action plan:**
- 4. Maximum Use of Employee during Rehabilitation Agreement:**
- 5. Penalty on Delay & non-achieving production Guaranteed capacities:**
- 6. Insurance:**
- 7. Abide to labor laws::**
- 8. Letter of Guarantee:**
- 9. Electricity Generation unit:**
- 10. Plant Management:**
- 11. Property of executed rehabilitation works:**
- 12. Continuous Maintenance during Agreement period:**
- 13. Letting of Agreement:**
- 14. Materials used in rehabilitation:**
- 15. Monthly Report:**
- 16. Exemption of custom duties:**
- 17. Inventory material at plant stores:**
- 18. Guard:**
- 19. Laws and regulation:**
- 20. Agreement contract:**
- 21. Entry/ exit visa and Residence permits:**
- 22. Force Majors:**
- 23. Dispute settlement:**
- 24. Care of works:**
- 25. Good Implementation**
- 26. Product Marketing:**
- 27. Secrecy:**
- 28. The "contracting party" legal entity registration:**
- 29. Final Report:**
- 30. Common services:**
- 31. Previous liabilities and Obligations:**
- 32. Termination:**
- 33. Present Production:**
- 34. Site handover and effective dates:**

II- General Conditions:

(For plants rehabilitation agreement)

1- Scope of rehabilitation works:

The "investor" shall undertake, according to the agreement, to rehabilitate and develop all production units and utilities in a manner to guarantee achieving the targeted capacity within a certain period. He may reach the targeted capacity in stages. The "investor" shall in his proposal, specify the target capacity of each stage according to his action plan.

2- The Agreement concept:

The core concept of the "investment Agreement" is that the "investor" shall perform all rehabilitation works in accordance with the terms of the investment file, and to undertake management and operation of the plant throughout the period of rehabilitation and afterwards on the agreed upon capacity, including supply and transport of raw material, operational and secondary materials, cost of water, fuel, electricity etc, additionally to pay the salaries and allowances of personnel(staff) (including labors) working at the state company during the rehabilitation period, and afterwards, all at his own expenses against having a share of the production.

3- Action plan:

The "investor" shall submit, within two months from signing the "Agreement" a detailed action plan and a detailed time schedule on the implementation of the rehabilitation works, taking into consideration stoppage of production units, for necessity only, for limited time in order to keep the continuity of production as much as possible during the rehabilitation period.

4- Maximum Use of Employee during Rehabilitation Agreement:

A- The "investor" shall, within two months from signing the Agreement, in coordination with the plant management, submit a plan on maximum use of the plant Employee in access to the production activities requirements in the rehabilitation works which he performs or in other projects he may establish in Iraq.

B- The "investor" shall keep all the employees pay their salaries and annual allowances according to prevailing rates of their colleagues at the Ministry of Industry and Minerals, pay incentives in accordance with an incentive system based on achieving the target capacities to be agreed upon before signing the 'Agreement'

5- Penalty on Delay & non-achieving Production Guaranteed capacities:

A: The investor shall undertake to supply the Ministry of Industry and Minerals /State Company with its share of the targeted stages capacities, regardless of achieving or not that targeted capacity on the contractual date.

B: The Penalty in (A) above shall continue for (3 months) only, starting from the contractual date for achieving that stage capacity. The investor shall be considered failed to complete the work if he couldn't achieve the contractual target capacity at the expiry date of the above mentioned period.

In case the investor succeeds in achieving the targeted production capacity within this (grace) period, this period shall not be a reason or part of request to extend the timing of the succeeding target capacities. Timing schedule should be respected as stated in the Agreement.

C: In case the investor failed to achieve the FINAL targeted capacity (at the end of the rehabilitation period), for a shortage not exceeding than 10% of the targeted FINAL capacity, he shall be liable to supply- as a Penalty- a quantity of production amounting to one ton of production for each one ton shortage.

In case this shortage is more than (10%). The investor should take, within six month, any necessary measures to rectify the situation to reach the contractual targeted capacity on his account. The investor during this period (6 months) shall continue to supply the Ministry of Industry and Minerals/State Company with the quantity of production mentioned above.

In case the investor fail at the end of this period to achieve the targeted production capacity, he shall be considered completely failed to fulfill his contractual obligations and the Agreement shall be considered terminated without any right to the investor to claim for any compensation on actual cost or expenses he has borne for his activities of this "Agreement"

6- Insurance:

The "investor" shall be obliged after signing the "investment Agreement" to get an "All risks insurance" policy for the plant and to insure all plant personnel against work accidents and risks.

7- Abide to labor laws::

The "investor" shall abide to all labor laws and the Iraqi instruction safety rules.

8- Letter of Guarantee:

The "investor" shall, on signing the "Agreement" submit on unconditional letter of Guarantee issued by a recognized Bank amount agreed upon later, The Letter of Guarantee shall be released after the expiry date of the "Agreement" and hand - over the plant.

The Ministry of Industry and Minerals shall have the right to, without court warning or judgment, confiscate the amount of the letter of guarantee in case of regress or failure of fulfillment of the investor obligations.

9- Electricity Generation unit:

The "investor" shall undertake to assure the availability of Electricity generation of a capacity sufficient to meet plant and services requirement of electric power at full production capacity.

10- Plant Management:

The "investor" shall present his work program containing the way he intends to manage the plant, technically and administratively to insure a smooth operation and best performance to achieve the agreed upon production capacity in a continuous way during the period of rehabilitation and afterwards.

11- Property of executed rehabilitation works:

All supplied and executed works of rehabilitation in accordance with the investment Agreement, after the expiry date of the agreement shall remain in the plant and will be within its property. This does not include personal materials used by the staff of the "investor" personnel, for which he can re-export after listing quantity and type.

12- Continuous Maintenance during Agreement period:

The investor, after completion of rehabilitation works shall continue to achieve agreed upon capacity by performing continuous necessary maintenance during the "Agreement" period and undertake to handover the plant after the expiry date of the Agreement in good technical condition able to produce at the same production rate agreed upon.

13- Letting of Agreement:

The "investor" shall not be allowed to letting the whole Agreement or part of it to a third party without a written approval from the Ministry of Industry & Minerals.

14- Materials used in rehabilitation:

All materials, equipment, machines and their spare parts to be used for rehabilitation should be brand new, reliable and genuine.

15- Monthly Report:

The "investor" shall submit a monthly report to the Ministry of industry & Minerals / technical committee, showing the progress of rehabilitation works and discuss the report to facilitate any obstacles he may meet.

16- Exemption of custom duties:

All equipment, materials, apparatus and their parts imported by the investor for the purpose of rehabilitation works which shall be part of permanent work certified by the Ministry/ state company shall be exempted from custom duties. The investor may ask for other exemptions and privileges in accordance with prevailing laws, in his proposal.

17- Inventory materials at plant stores:

All inventory materials owned by the state company should be listed and priced by the Ministry / State Company. The investor have the option to buy all or part of these materials in case he needs them for the rehabilitation work.

18- Security:

In due time, the investor shall coordinate with the state company management to organize the guard and security of the plant. In such a way that the responsibility of the security and safety inside the plant lay on the investor responsibility, and out side the plant on the relevant Governmental authorities responsibility.

19- Laws and regulation:

The investor shall abide with terms of prevailing Iraqi laws and regulations when performing his obligations of the "Agreement" with out jeopardize to his privileges of the "Agreement".

20- Agreement Period:

The investor, in his proposal, shall specify the minimum Agreement period he finds it necessary. At the end of this period the Agreement shall be ended unless the two parties agree on extension.

21- Entry/ exit visa and Residence permits:

The Ministry/ State Company shall support the investor to obtain Entry/ Exit visa and Residence permits for his Employees according to prevailing Rules and Regulations.

22- Force Majors:

The "Agreement" shall contain "Force Major" clause and the rights and obligations of each party on this case. The prevailing conditions at the time of signing the Agreement will not be considered a force major case.

23- Dispute settlement:

The disputes between the parties shall be settled amicably. In case of failure to reach an amicable settlement the parties may apply the Arbitration procedures of the prevailing laws in Iraq.

The Iraqi courts , only , shall have the jurisdiction to look in disputes.

24- Care of works:

The "investor" throughout his work in rehabilitation and development shall take due care of the plant, its machines, equipment and facilities, etc. paying utmost care to safety regulations during the Rehabilitation Agreement period.

25- Good Implementation

In case it appears to the Ministry of Industry/ technical committee, that a work is done inadequately, or using improper material or by unqualified labors or in a way endangering other equipment or facilities, the investor should agree to the MIM/ technical committee written request to stop the work and remedy the situation through an action to be agreed upon in a joint meeting.

26- Product Marketing:

The "investor" shall have the right to sell his share locally at the price he finds suitable and export the excess abroad.

27- Secrecy:

The "investor" undertake to keep the informations contained in the "Investment Agreement" confidential. He has no right to disclose or transmit the informations to other parties (except his partners) before he gets a written approval from the Ministry.

28- The "investor" legal entity registration:

The "investor" or the investing group shall establish a legal entity to perform the activities of the Agreement which should be registered at the Companies Registrare office in accordance with the Iraqi Ministry of Trade

regulations and terms of companies law No. 21 for the year 1997 and its amendments.

29- Final Report:

The investor, at the end of the "Investment period" shall hand over to the Ministry / state company a detailed report targeting to help the Ministry / state company to keep the smooth efficient operation and maintenance of the plant (operation manual, maintenance manuals, inquiry and ordering Manuals and Inventory records etc).

30- Common services:

The investor and the Ministry / state company shall coordinate to control and run the facilities which serve other parties-such as water supply in a way that such requirements of other parties shall be ensured.

31- Previous liabilities and Obligations:

The investor shall not be part or responsible of any liabilities and Obligations on the Ministry / state company before signing the Agreement concerning the activities of the state company/ Plant The same applies on the other parties liabilities and obligations towards the Ministry or the company or the plant.

32- Termination:

In case this Agreement is Terminated by the Ministry of Industry for no reason related to the failure of the investor to fulfill his contractual obligations, the Ministry shall compensate the "investor" for the actual expenses he spent to Implement his activities according to this Agreement.

33- Present Production:

The "investor" under take to sell to the Ministry at cost the present quantity produced during the period of running the plant parallel to the rehabilitation activities until the end of the first year from the Agreement validity.

In Case the whole quantity received by MIM at prevailing rate, before the end of the year, then the sharing formula shall be applied according to the agreement.

34- Site handover and effective dates:

The periods agreed upon in the Agreement for achieving targeted production stages and final production capacities, shall be counted starting from the date of handing over the plant to the investor to be within three months from the date of signing the Agreement otherwise the terms of clause (8) of this Agreement shall be applied.

III- Data & Scope of Work

1. Introduction

Missan Paper Mill is located at Al-Majer Al-Kabeer County of 20 km south of Missan governorate, south east of Iraq. It s of the most important factories belong to State Company of Paper Industries /Ministry of Industry and Mineral /Iraq. This factory consisted of following main units exposed for investment:

- 1.1. Cement Sacks Paper Machine Line.
- 1.2. Board Machine Line.
- 1.3. Eggs Trays Machine Line.
- 1.4. Industrial Services Units.

Historical Summary:

Cement Sacks Paper Machine was installed 1979 with a capacity of 140 ton per a day by Esherwyes GmbH Germany Corporation and commenced production at the beginning of 1980 producing semi clupack cement sacks paper weighing 75 gm/m^2 using 50% of imported unbleached Kraft pulp and bagasse pulp were produced locally. When using this paper at Sacks manufacture of cement plants of 4 layers, it was appeared two difficulties represented by the low prosperity of the papers leading to constraining or seizing air inside sacks at the time of packing it and owing to that specification of strength at the minimum limits is acceptable, and beyond several attempts and scientific experiments, it was modified mixing percentages of pulps to be 70% of imported Kraft pup and 30% bagasse pulp producing paper weighing 75 gm/m^2 , but the problem of specification of elongation and tensile as well as its instable at the acceptable limits especially cross directive of the strip was limited effecting on the quality of usability of this paper succeeding packaging at Cement factories. The issued for which, these factories to use one layer or two with imported paper of high quality standards so that total number of layers of cement sack will be 4 layers.

In 1984, it was produced cement sacks paper weighing 94 gm/m^2 using 70% of unbleached pulp and 30 % bagasse pulp and entered clupack improving the specification of elongation towards the machine manufacturing sack of three layers. Many times, it was used two layers of this paper only with a third external layers of imported paper weighing $80\text{-}85 \text{ gm/m}^2$ increasing the strength of sack to be ready for printing on, as to that domestic paper caused problem in printing due to shrinks an jamming due to inconsistency of the effect of clupack unit on the paper as a result inconsistency of strip tensile and the humidity on its cross directive and the abundance of

cuts in each roll. All that leading to make breaks of sacks manufacturing machines leading to lessening its productivity, showing technical defects in the produced sacks.

It is noted that the capacity of the machine is reduced from 39,000 MT annually (280 days) to 30,000 MT annually in 1992 due to idle of machine head box replacing it with another one of less productivity in addition to output one of press roll out off work due to idling it and could not be repaired.

2. Cement Sacks Paper Machine Line:

Description of The Production Line:

During the current circumstances, some new events and actors are appeared imposed creating a new strategy for cement sacks paper industry briefed in the following points:

2.1. Suspending production passage pulp due to stopping sugar cane planting at State Company of Sugar Industry in Missan and there are no indications to retrieve this activity soonest.

2.2. The non-readiness of re-coasting unit residue by coasting thus it could not be re-used the waste of industrial sewerage water bearing a heavy load more than the capacity of industrial WTPs then discarding it onto river causing high pollution in contrary with the environment protection laws and regulations.

2.3. Using high percentage of longer fibers wood imported pulp compensating bagasse domestic pulp leading to many disadvantages as follows:

2.3.1. Inability to comprehend current technological path allocated to treat wood imported pulp by a percentage more than the design capacity leading to reduce and instable final product.

2.3.2. The high cost of production as to prices of this type of pulp are ranged from 600 to 650 US \$/MT CIF the production site, and to cancel the policy of the state in importing this materials by supported exchangeable prices as it was done during past years, this will be led to increase the price of selling the product by more than prices of purchasing paper or ready sacks from international markets.

2.4. It is available in the local markets presently considerable quantities of foreign board boxes as a waste under treatment to be discharged through burning or filling while it can be utilized to produce cellulose pulp by pulping and treating it using special equipments and technology by almost paper industry corporations.

3- Board MachineLine:

3.1. Historical Summary:

The board machine installed in 1979 and commenced the work in 1980 as it is designed to product different types of board by cylinder mould of a design capacity totaled 18,000 MT annually.

Types of designed board to be produced by this machine are as follows:

- Duplex Board of a basic weight 320-600 gm / m².
- Triplex Board of a basic weight 220-300 gm/m².
- Common Board of a basic weight 320-600 gm/m².
- Linear Board of a basic weight 220-260 gm/m².
- Manila board and Book Cover of a basic weight 180-240 gm/m².

Due to presence of prime coating unit on the machine, it can be given a coat of 6-8 gm/m² for types of duplex and triplex board or surface treatment using starch as per the demand for all types to be produced.

Raw materials planed to be used upon the quality to be produced as these materials are of the unbleached imported, bleached pulp, baggase local and waste paper pulps by percentages upon the quality of board to be produced.

It was planned that the production would fulfill the needs of public, mixed and private sectors in Iraq with all required types of board for packaging, covering tins, carton boxes to be used by (Vegetable oils, Cigarettes, Leather, Textile and Iraqi Cartons State Cos., etc.)

Through experimental examination it is reached the design capacity of the machine supplied by the manufacturer ; Esherwyes Germany GmbH and continued production achieved the planned quantities till end of 1990 so that after this years the machine commenced with retardation in its operation, low level of specification, refuse the products by many beneficiaries and clients in regards to printing, packaging and covering for tins and carton boxes.

This results is due to aging the company and entire consumption for some parties of equipments caused the inability to prepare pulp including quality as per the accredited specifications and the deficiency of equipments technologically by its all different stages and the disability of discarding foreign matters and its residing at the final product.

Due to inability of modernizing nor replacing consumed equipments due to the un-allocating financial allocations, it was used to manufacture some alternatives in the local markets as per the available possibilities but the performance of these equipments never been in compliance with the technical required level securing skipping the retardation of the quality specifications and low productivity of the machine leading to sustaining lowering the production and by qualities never been in compliance with the specification accepted by the clients.

4- Eggs Trays Machine Line:

4-1: Historical abstract

This plant was installed at 1979, start production at 1980 with design reach to 33 million trays per year. The original design use 50% local bagasse pulp and 50% waste paper pulp. the produced tray was bended because of the different in quality of two kind of pulp, specially keeping water properties of bagasse pulp, and difficulty of extract it from this pulp during pressing process in compare with waste paper pulp, this lead to a difference in tray moisture which cause bending, through the operation and observation, its found that newspaper waste better than paper waste, it give a strong tray.

A total maintenance was achieved at 1986 to the machine by providing company which replace the shelve and chains, and add water spray nozzles and circular rotating brush to clean the mould during the production and they installed a electrical probes system, which stop machine when lend in any shelf of machine occur and give alarm appoint the lend location. These decreases the spoilt in machine shelve or chain destruction.

After years, no total maintenance for machine because no spare parts. Machine stopped at 1990. Then all spare parts moved to another plant in Baghdad and shelve and chain was made in local market (technical university) in Baghdad with low quality

4-2: Plant Status

Eggs tray plant in Missan stopping is considered big lose to company, because of availability of all its raw material of all its operation process necessities, specially raw and fuel and its limited need from electricity power, which may be supplied by national network or by diesel generator, it need half megawatt, the spare part price half million dollar.

To re-start the machine and reach design capacity need to the following:-

4-2-1 Machine spare parts include

- Tray forming mould.
- Tray pressing mould.
- Mesh wire to mould.
- Shelve with its accessories, 480 shelves.
- Chain to rise and move the shelf.
- Total maintenance for all other parts.

4-2-2 Install an additional equipment to enhance the produce quality which includes:-

- Install defleker for waste paper pulp before machine.**
- Install fibraizer after defleker to improve high purity pulp.**
- Install circular brush to clean mould during production.**
- Install air compressor for machine only.**

Iraqi staff can participate in install, construction and repair with supervising from providing company experts, more detail, see appendix (3).

5- Industrial Services Units:-

Historical abstract

Paper industry need several industrial service to complete the production, water is the media where celliuse treating in all production stages. There for its need a great amount of water with re -using ability reach to 70% from recovery water. Also the drying process achieved by using drying cylinders heat exchange which fed by steam, these need a big amount from steam with ability to recover the condensate 80% from used steam.

According above, we need a sewerage network, classified according to waste water type; some of them need chemical and biochemical treatment before disposal to river.

The plant have steam turbine generator, 10 megawatt capacity, in addition to national network, the operation of this unit need a special steam.

The operation process needs other service, such as air, air conditioning... etc more detail see appendix (4).

6- Technical Status:

You can see the appendixes which show the view point of the general company for paper industry about the state of plants and re construction equipment.

Appendix no.1 Cement Sacks Paper Machine Line.

Appendix no.2 Board Machine Line.

Appendix no. Eggs trays Machine Line.

Appendix no.4 industrial service units.

7- Competitive conditions:

7-1 Cement sacks paper

Iraqi Cement company needs for the next five years are:

Company	Annual need rate
Iraqi cement general company	5200 ton
North cement general company	25000 ton
South cement general company	5000 ton
Total	35200 ton

In addition to the expected increasing in the demands because of the re-construction for these plants and Kurdistan plants, and new projects.

7-2 Board

7-2-1 The total amount consumption from board in 2004 with weak demand market, 16200 ton approximately.

7-2-2 the expected demand to board in 2007 to 25500 ton.

7-3 Eggs trays

The companies have not accurate data about the currently demand on eggs tray, because most chickens filed stopped or depend on imported tray, to appoint this need, we suppose the following:-

- The Iraqi people reach to 25 million people approximately
- One eggs to each person every 5 days or one person from five have one egg every day.
- Therefore daily consumption = 5 million eggs
- Needed tray number = $5000000 \text{ egg} / 30 \text{ (egg / tray)}$
 $= 166666,6 = 166660 \text{ tray daily}$

With respect that tray for one use, monthly needs will be

$166660 \times 30 \text{ day} = 5000000 \text{ tray / month.}$

Where design capacity = 33000000 in year

Therefore the tray local market demand still high and could reached to design production, but we must respect the serious competition from

- Tray machine in school copybook factory in Al-Tajy 60 million trays in year.
- Tray machine in Baghdad (privet sector) 2 million trays in year.
- Tray machine in Kurdistan – under construction

The following table shows the expected consumption of similar products in Iraq.

Produce type	Annual need rate
Cement sacks paper	35200 ton
All board types	25500 ton
Eggs trays	60 million tray

The suitable price and high quality will be main factors in customer's choice.

8- Final products Specifications:-

8-1 Cement sacks paper Considered by the Cement Companies in Iraq.

The following table shows the quality of two types from imported cement sacks, and local paper quality, produced in 2002 before the machine total shut down.

Quality and quality un dependent energy	Measure unit	Sample no.1 imported	Sample no.2 imported	Sample no.3 local production
Basic weight	Gm/m2	85	75	94
Ten sail strength MD	Kg	11	8	7
Ten sail strength CD	Kg	7	7	3.3
Elongation percent MD	%	5.5	5	4.7
Elongation percent CD	%	5	5	4.3
MD SBE	J/m2	290	230	100
CD SBE	J/m2	186	220	65
Porosity	Second	17	17	45
Sack layers number	Number	2	3	3
One sack weight	Gm	197	252	320
No. of produced sacks for 1 ton	No.	5061	3960	3125
The spoil amount for each 100 sacks	No.	3	3	15
Paper weight for spoiled sacks	Gm	591	756	4800

The favor quality which must be achieved after enhancing is no. 1 to produce sacks with two layers, which enquire a higher production for one ton and low spoil rate, and reduce the operation problems and waste time.

8-2 Board quality / the following table show the required specification.

Quality	Production type	Basic weight	Thickness mm	Stiffness MD mm	Stiffness CD mm	Moisture	Cobb test TL gm/m ²	Cobb test BL gm/m ²	Picup D.waxTL	Picup D.wax B.L	Exclusion resistance power kg/m ²
Uncoated duplex board		245 ++6%	0.30 0.35	6000 70000	3000 4000	5 8	30 40	40 50	-	-	-
coated duplex board		300 ++6%	0.40 0.45	11000 14000	3000 6000	5 8	25 30	30 40	7 9	9 12	4 min
Uncoated duplex board		325 ++6%	0.40 0.45	8000 9000	4000 5000	5 8	30 40	40 50	-	-	-
coated duplex board		350 ++6%	0.45 0.50	14000 15000	5000 8000	6 8	25 35	30 40	7 9	9 12	5 6
coated duplex board		400 ++6%	0.50 0.55	20000 25000	6000 10000	5 8	25 30	30 40	7 9	9 12	5 6
Lainer board		260 ++6%	-	-		5 8	40 50	40 50	-	-	4.5 min
common board		300 400 ++6%	-	-		6 8	30 40	30 40	-	-	-
One side coated triplex board		200 ++6%	0.30 0.35	4000 5000	2500 3500	5 7	25 30	30 40	7 9	7 9	5 min
Colored manila board		210 ++6%	0.30 0.35	4000 5000	2500 3500	5 7	25 30	30 40	7 9	7 9	5 min

8-3 Final Eggs trays specifications:

There are no standard qualities for tray but it depends on the external appearance and the simple test for strong and strength and volume, as follow:

Tray basic weight 75 gm.

Tray forming area 320x 1160 mm.

Having capacity to egg volume 17 Libra / 30 eggs.

No holes and homogenous weight.

Smooth inside surface treated by brafin wax, resistance to moisture when an egg is broken.

Ability to produce colored tray by adding a suitable dyes to pulp in final stage before forming and pressing.

9- Environmental Requirements:

1- Importance of treatment units maintenance to water physically, and chemically and biologically to sure that waste water be according to environmental limits as rivers maintenance system no. (25) At 1967.

2- Dependence on recycling water as possible in process.

3- Availability of control and measuring device.

4- Availability of data base to all waste to provide environment ministry by all information periodically.

5- Dependence on product technique which use little amount from water.

6- Dependence on control system on solid wastes to reduction its treatment.

10- The Required Investment

The aim is to rehabilitate the plant technically, operate it on economical basis, to reach its targeted production capacity, all at the "investor" expenses, against share of the product for certain period (to be agreed upon with Ministry of Industry & Minerals) taking in consideration the following conditions:

10-1: The "investor" shall undertake to perform all necessary rehabilitation works for all production lines and utilities of the plant and other facilities to ensure that the plant shall work at the targeted capacity.

10-2: The "investor" in cooperation with his supporters, specialized in Paper Industry, shall depute technical experts to visit the plant site to evaluate the technical requirements of rehabilitation & conclude detail investigation.

The plant management shall provide all needed assistance to help the experts team to perform the technical investigation of the plant including providing technical data, and drawings.

10-3: The "Investor" shall present to the Ministry of Industry & Minerals, his technical and Investment proposal showing the share percentage of product he requires based on the budget he expects to invest in the rehabilitation works, agreement duration and plant management policy after rehabilitation.

10-4: The Ministry of Industry and Minerals and the state company, shall negotiate the candidate investor to conclude a final agreement.

11- Legal Framework

Upon agreement between the Ministry of Industry & Minerals and the Investor, terms of the Investment law No. 13 for the year 2006 (attached App.5), including its privileges for investor, shall be adopted in the rehabilitation Agreement between the two parties.

Iraqi law No. (22) of year 1997 for the State companies, will be applicable.

12- Privileges for Investor

- 12-1- Right to establish trade representation offices and branches in Iraq, such offices and branches shall be registered with the Iraqi Registrar of companies office.
- 12-2- Right to establish a business entity jointly with an Iraqi or foreign Investor.
- 12-3- In case an agreement is concluded on basis of product sharing, the Investor shall have the right to sell his share in the market at the price he define.
- 12-4- Investor may collaborate with Iraqi partners.
- 12-5- Right to possess, use, dispose his invested money in Iraq in accordance with prevailing rules.
- 12-6- Use freely convertible currencies or Iraqi legal currency, Right to transfer money into and out side Iraq in accordance with Central Bank regulations.
- 12-7- The Ministry of Industry & Minerals shall put at disposal of the investor the plant site and adequate storage space, including existing equipment to implement modifications – Rehabilitation, to enable him to fulfill his obligations.
- 12-8- The imported fixed assets shall be exempted from custom duties provided they are brought to Iraq within three years from the date of Agreement . This period may be extended or reduced by the Establishment Authorized, if found necessary.
- 12-9- Imported fixed assets necessary for extension or development of the plant shall be exempted from custom duties.
- 12-10- Selling the plant product is not subjected to any price restriction.
- 12-11- The investor may in his proposal ask for any additional privileges to be specified in accordance with prevailing laws to be included in the final Agreement.

13-Investor obligations:

In addition to the terms of the General conditions, the investor shall notice the following:

13-1: The Investor or his supporting technical entity should possess sufficient experience and qualifications to construct (rehabilitate) such plants.

13-2: The Investor should obtain quality certificate (ISO 9000).

13-3: Agree to engage the present employee of the factory in all his activities and insure them against risks, supply safety equipment and requirement. He may engage foreign employees for leading technical positions.

13-4: Abide to Health and safety regulations and Instructions issued by world Health organization (WHO) and International labors organization (I.L.O) and abide to Emission standards criteria available at the Ministry of labors and social Affairs.

13-5: Shall Under take to supply power generation Unit with a capacity capable to Cover the plant production & utilities units needs of electricity reliable at the time being.

13-6: The investor should Fill-in carefully in details the data Forms enclosed.

Ministry of Industry & Minerals
Data Form

- *Project Name:*
- *Interested Company Name :*
- *Company legal entity (share holding Co., Limited,...etc), attach copy of establishment certificate & names of shareholders who have 30% share and above:*
- *Registered Capital :*
- *Company or Firm legal representative:*
- *Identification :*
- *Applicant address in Iraq:*
- *Contact details in Iraq and outside Iraq:*
- *Suggested Production Capacity *:*
- *The Applicant must abide by the Technical, Financial and Legal terms stated in the Investment file, clarify how to fulfill*:*
- *Technical Supporters with confirming documents* :*
- *Name of Financing Group/s with his/ their reference/s , supported by latest financial report/s: **
- *Technical References & Expertise *:*
- *Similar Implemented and under construction projects (References) *:*

Signature:

Name:

Position in the company:

Stamp:

Note: Details for articles pointed by (*) To be given in details separately according to the enclosed forms .

Suggested Production Capacity

Undertaking to abide by the Technical, Financial & Legal terms stated in the Investment file, clarify how to fulfill:

Technical Supporters with Confirming Documents.

Name of Financing Group/s with his/their Reference/s,
Supported by the latest financial report/s.

Technical References & Expertise

**TO PRESENT HEREWITH DETAILED DESCRIPTIO FOR
HIS TECHNICAL ALLIES IN THE FILEDL OF DESIGN
AND IMPLEMENTATION OF UPGRADING WORK.**

Similar Implemented & under construction projects
(References).

Appendix No. (1) Cement sacks paper Machine Line

1- Technical feature for machine

Machine name	Fourdriner	
Design production capacity	39000	Ton/year
Currently Design production capacity	30000	Ton/year
Machine speed	400	m/min
Machine wide	4.7	m
Wire length	35	m
Paper web net wide	4.2	m
Head box type	Step diffuser	
Vacuum system	Turbo air	

- press number and type
 - 1- Compound main press no. /1
 - 2- NIBCO type press /2
- drying system
 - Drying cylinders no. (39) cylinder diameter (1.5 m)
 - Size press,
 - Clupack unit.
 - Winding cylinder

2- Currently Machine Status:

1-Get old all pulp preparing equipments and the machine, therefore it have low efficiency and which lead to low production quality and more shutdowns and expensive maintenance, therefore high production cost.

2-Several equipment in total shutdown, specially, cleaning equipments and fiber recovery, unclosed used water cycle.

3-Head box spoil (step diffuser type) and replace it with other bottom efficiency (pressurized type).

4-Total shutdown for the third press.

5-Much leakage in steam net and condensate header and steam in drying cylinders.

6-Unavailability of bagasse pulp currently because stopped the production in cane plant in Mesan sugar plant.

7-Couldn't use (OCC) waste because no technical equipments to use (OCC) instead of bagasse pulp, therefore the dependence on imported pulp increase, these will increase the cost and low quality.

8-UN stable quality from produced papers because of unstable operation state to machine because of the mentioned reason, therefore rejected production will increase then will reach to customer and effect on total production process.

9-No control system or self control on machine operation condition and depend on manual control depending on lab. Test results therefore the rejected production will increase and interfere with good , the operation and production state for machine at 2002 :

- total time for shutdowns for different reason : 5 month
- production amount on machine : 3266 ton
- production amount on winder : 2891 ton
- Bad production amount on machine and winder : 375 ton
- Received amount in storages : 2714 ton
- Bad production amount on winder and storage : 177 ton
- Sale production amount to cement factory : 2112 ton
- Bad production amount which returned from cement factory: 176 ton.

Therefore total refused amount from production = 728 ton (23%) from total machine production.

3- Technical paths and expected improving work:

3-1 pulp preparation:

This path consists from the following detailed component:

A – Unbleached craft pulp no. (1) With (90 ton / day) capacity includes:

- pulper type ST7 with iron conveyor with drain pump.
- Drain chest with (85 m3) with agetater and pump and consistency refiner
- High density cleaner no. /2.
- Defleker no /1.
- Disc refiner (DSR2) type no. /2.
- Bufer chest with (45 m3) capacity with agetater and pump.
- Ratio and flow mixing box with control instrument.

Expected improving work:

- Exchange iron conveyor.

- Exchange pulper impeler and moving gear box.
- Exchange pulp high density cleaner.
- Exchange or maintain pulp defleker and refiner.
- Over haul to pumps, valves, and agetaters.
- Maintain ratio and flow mixing box with control instrument and chest level.

B – Unbleached craft pulp line no. (2) With 20 ton /day capacity, include:

- Pulper type ST4 with iron conveyer with drain pump.
- Dump chest with (45 m²) with agetater and pump and consistency regulator.
- Pulp high density cleaner no. /1.
- Defleker no /1.
- Disc refiner (DSR2) type no. /1.
- Mixing chest with (45 m³) capacity with agetater and pump.
- Ratio and flow mixing box with control instrument.

Expected improving work:

As detailed in A.

C- Local pulp (bagasse) with (110 ton / day) include

- Dump chest with (45 m³) with agetater and pump
- Disk refiner (DSR2) type no. /2.
- mixing chest with (45 m³) capacity with agetater and pump.
- Ratio and flow mixing box with control instrument.

Expected improving work:

- Total maintenance or exchange refiner.
- Over haul to pumps, valves, and agetaters.
- Maintain or exchange ratio and flow mixing box with control instrument and chest level.

3-2 Aproch flow system

System capacity (140/day) include:

- Machine chest no. 2 with (45 m³) with agetater and pump and consistency regulator.
- Paper basic weight control valve and constant level box.
- Machine refiner (DSR1) type no. /1.
- First fan pump.
- Low density cleaner first stage no. /6.
- Low density cleaner second stage no. /2.
- Shaking strainers no. /2 (1.5 m²) volume.
- Second fan pump.
- Pursue rotary strainers no./2.
- Surge tank to machine head box.
- Machine head box.

Expected improving work:

- Total maintenance or exchange pump, agetaters, shakers and prusture strainers.

- Install disk refiner (DSR2) type no. one
- Exchange machine head box by new one.
- Install centrifugal cleaner for first and second stages, because of spoilt old.
- Exchange all measuring and control instrument and connect it by computer.

3- Wet part from machine system.

This includes:

- Machine head box.
- Breast roll and wire roll and tension roll wire guide.
- Forming plates and vacuum boxes.
- Wire shaker.
- Wire tension and direction instrument.
- Speed and vacuum control instrument.
- Vacuum pump (turbo air).

Expected improving work:

- Exchange head box by new on suitable to new production after reconstruction which reached to (150 ton / day).
- Inspect and maintain or exchange all wet part rolls.
- Maintain wire shaker.
- Exchange Wire tension and direction instrument.
- Inspect vacuum pump and make balance for it with all its control instrument

3-4 Press system

Its include:

- Vacuum roll.
- First and second double press.
- Third press pinko type.
- Felts tensioning and direction roll.
- Hydraulic system and air controlling system.
- High pressure pump for washing cleaning and felts, wire cleaning sprayer.

Expected improving work:

- Exchange or rise press efficiency.
- Install new press instead of currently damaged third press.
- Inspect or repair or exchange felts tensioning and direction roll.
- Exchange hydraulic system.
- Exchange high pressure pump for washing cleaning felts, wire cleaning sprayer.
- Inspect vacuum system and maintenance it completely and its accessories.

3-5 Drying system :

This includes:

- Drying cylinder no. /39 with diameter (1.5 m).
- Pipe net with different diameter to steam feeding and collect condensate which return to boiler.

- Air heating and distribution system.
- Clupack unite to increase paper length protraction properties.
- Size press unit.
- Winding cylinder and paper calander.
- Central control system to rotary part.
- Hood with air drawers and hot air distribution ducts.
- Felts tensioning and direction for dry part.
- Main crane to machine no. /2.
- Winding machine and rewinding machine for paper with required measures.
- Gear group to drying cylinder group.
- Web delivering rope system.

Expected improving work:

- Improve drying process by add drying channel by air instead of cylinders.
- Exchange damage steam and condensate pipe from drying cylinder.
- Total maintenance for hot air system and exhaust fan.
- Improve Clupack unit.
- Install new calander to make paper surface smooth.
- Total maintenance to winding and rewinding for paper and install paper brocke fan under winding and rewinding.
- Repair machine hood and main roof to machine hole.
- Inspect and repair gears for dry par groups.
- Improve web delivering system.
- Install drying control system and connect it with computer.
- Total maintenance for main electrical cranes.

3-6 Recovered brock system :

Its include:

- Dry brock pulper (ST2) type with two agetaters and pump.
- Wet brock pulper with snail agetater and pump.
- Recovered brock pulp storage chest with (45 m3) with agetater and pump and consistency regulator.
- High density cleaner no. /1.
- Pulp defleker no /1.
- Ratio mixing boxes with control instrument to ratio and flow and level.

Expected improving work:

- Total maintenance for all system.
- Install high density cleaner no. /1.
- Install pulp defleker no /1.
- Maintain or exchange control instrument to ratio and flow and level.

3-7 Recovered and reused water unit:

Its include:

- Whit water silo with pump.
- Pulp seetner.
- Whit water chest with pump.
- Disc fiber recovered unit.
- Purified water chest with pumps.
- Fogs water chest with pumps.

Expected improving work:

- Total maintenance to pumps and repair the damage one.
- Maintain or exchange disc recovered unit.
- Maintain chest level measuring instrument.

3-8 Chemical preparing unit

Its include from:

A- posein size prepare unit (5 ton / day) consist from :

- Dissolving tank with agetater and drain pump.
- Storage chest with (30 m³) volume with agetater and pump.
- Feeding tank with (2 m³) volume.
- Adding system and ratio and flow control.

Expected improving work:

- Exchange pumps no. / 2.
- Total maintenance to other pumps.
- Exchange or improve adding and control system

B- Aluminum sulfate preparing unit with (10 ton / day) :

It consist from

- Feeding silo to dissolving unit.
- Dissolving tube.
- Dissolving water spryer.
- Aluminum sulfate solution collection tank.
- Drain pump no. /2
- Daily usage tank (5 m³).
- Main adding meter.
- Final adding meter and PH adjusting.

Expected improving work:

- Exchange dissolving tubes and water sprayers.
- Exchange all pumps in collection tank.
- Exchange main and sub adding meter and install PH meter.
- Total maintenance for all system.

3-9 Wrapping and numbering and weighting system for final product :

- **Damage the numbering and weighting system.**
- **No wrapping reels products machine.**

Expected improving work:

- **Install new numbering and weighting system.**
- **Install wrapping machine for reels and print the production data on it.**

3-10 Cores making machine

- **Old machine and therefore get bad quality.**

Expected improving work:

- **Install new machine work with spairal winding work to produce the core with required measured and dimension.**

3-11 Production and raw material transporting system

- **No transporting tools for final production and raw material.**
- **Sliding wagon lines damage which transport and move the production reels.**
- **No cranes for raw material.**

Expected improving work:

- **Fork lift with (1.5 ton) capacity no. /2.**
- **Clamp lift crane to moving final production reels with 2 ton capacity.**
- **Install sliding wagon lines which transport and move the production reels.**

3-12 Air conditioning and lighting system:

- **Total maintenance for this system with central air conditioning unit.**

3-14 Electrical circuit, instruments and systems

- **Total maintenance for all control room and electronic circuit for machine and equipments.**

- **Re install shock prevent on production build.**

4- Direct and non direct technical services for project with showing its quantity and efficiency currently:

the following table show the technical service for project with quantity and efficiency currently :

No.	Service type	Required quantity for 1ton production	Unit cost in dinar	Total value dinar	Ready ratio %	Notes
1	Water	70 m3	8	560	30	Water unit need rehabilitee
2	Electricity	2.8 mega watt	3000	8400	20	Limitation of providing from national net
3	Steam	4 ton	2500	10000	50	Second boiler need rehabilitee
4	Pressed air	250 m3	4	1000	25	Compressor rehabilitee
5	Industrial water treating	20 m3	4	80	0	Treating unit rehabilitee
6	Other services (fire extinguish, storages, workshops, lab)	-----	-----	10000	75	-----
Total technical service cost for each ton : 30040 dinar / ton						

5- Human sources:

The improving of cement paper machine to reach the design capacity need to technical staff as detailed in the following table, with suppose the work according to four shift system, the required staff is available currently with 50 % for engineering staff but need practicing to gain a knowledge and skill which be suitable with the technical level of machine after rehabilitee.

No.	Employ address	Certificate and service years	Required no.
1	Production manger	Engineering or chemistry B.C. have experience 10 year as low limit	1
2	Production engineer	Engineering or chemistry B.C. have experience 5 year as low limit	1
3	Maintenance engineer mechanic	Mechanical Engineering B.C. have experience 5 year as low limit	1
4	Maintenance engineer electricity and electron	Electrical Engineering B.C. have experience 5 year as low limit	1
5	Maintenance engineer instrument	Electrical Engineering B.C. have experience 5 year as low limit	1
6	Alternator engineer	Engineering or sciences B.C	1
7	Operation shift and lab. Maintenance chef	Technical diploma mechanic/electrical/chemical analysis	16
8	Technical observer	Technical diploma mechanic/electrical/chemical analysis	25
9	Assistance of technical observer	Technical diploma mechanic/electrical/chemical analysis	50
10	Technical operator	Technical diploma mechanic/electrical/chemical analysis	75
11	Technical worker	Intermediate study as low limit	75
12	Crane driver	Intermediate study as low limit	8
13	Wrapping machine operator	Intermediate study as low limit	12
14	cores machine operator	Intermediate study as low limit	12
Total no.			275

6- Elementary economic benefit study for project:

Guessing cost to improving and rehabilitee process for cement sacks paper machine is (15 million dollar) which equal to (22500000000) dinar.

Cost for 1 ton after rehabilitee

Usage	price / dinar	used quantity / kg	value / dinar
OCC waste 77%	125000	770	96250
Unbleached craft pulp 33%	975000	330	321750
650 dollar x 1500 dinar			
Aluminum sulfete	600000	40	24000
rosein	1000000	10	1000
Industrial service	-----	---	75000
Package and wrapping	-----	---	10000
Salary	-----	---	75000
Workers transporting	-----	---	3000
Olden	-----	---	100018
Total	-----	---	715018

- Total cost = 715018 dinar = 477 dollar.
- Price rate for one ton of imported paper = 750 dollar.
- Profit = 273 dollar = 409500 dinar.
- Capacity of production after rehabilitee = 150 ton / day
= 45000 ton / year.

7- Productivity of work in plant

The total number of workers according to tables on rehabilitee plant will be (285 employee), and the production will be at 80% from design capacity 36000 ton / year divided on 258 employee equal to 139.5 ton / employee in year.

Equal to 750 x 1500 x 139.5 ton = 156937500 dinar.

8- Material productivity:

- From cement sacks paper production cost table, the used material cost for one ton production = 4520000 dinar.
- Material productivity is (1150 kg) per ton from produced paper which its value 452000 dinar.
- Dinar productivity = $452000 / (1500 \times 750 \text{ dollar}) = 452000/1125000=0.4$

9- Rehabilitation aims

9-1 Increase the machine capacity to (150 ton / day) from paper with basic weight (87-85) gm/m² to cover all Iraqi cement company needs and other to export.

9-2 enhance and increase the strength feature in produced paper to the limit which may produce sacks with to layers if the produced paper feature as following :

Feature	measuring unit	description
Basic weight	gm/m²	85 – 87
Tensile strength MD	kg	11 low limit
Tensile strength CD	kg	7 low limit
Elongation MD	%	5.5
Elongation CD	%	5.0
MD SBE	J/m²	290 low limit
CD SBE	J/m²	186 low limit

9-3 Using the highest ratio of carton box pulp (OCC) no less than 70% from lowest ratio from imported pulp which have long fibers not more than 30% to reduce the cellulose material cost.

Appendix No.(2) Board machine Line

1- General technical feature for machine

Machine type	Machine work with (forming cylinders) cylinder mould no. 7	
Web width	320	Cm
Forming area width	370	Cm
Machine speed	80	m/ min depend on basic weight to production
Machine design capacity	18000	Ton in year
Production basic weight	180-600	Gm/m ²
Production type	Duplex board. triplex board, common, manila lainer, book cover with different weight between 180-600 gm/m ²	
Ability of produce Duplex or triplex board with elementary coat layer with weight (6-8) gm/m ² or treat the surface with starch because exist of coating unit Bill Blade type and size press on machine		
Steam drying system with 3 bar through 28 cylinders with 1.25 m and MG cylinder with 5 m diameter and 3 bar steam		
Calendar with Nipco roll to enhance board surface soft in dry part		
Winding machine to production after machine to rewinding it with required measured with 320 cm wide		
Horizontal partition no. : 2 to cutting the board to layers with required measured		
No Wrapping machine to parcels depend on manual wrapping to parcels		

2- Currently machine status:

The machine was stopped because of the following:

- 1- Unstable providing by electricity power from national net.**
- 2- Low productions for machine reach to 10% from design capacity.**
- 3- High production cost because low production and high cost of salary and transporting.**
- 4- Unavailability of raw material.**
- 5- No marketing competition because the bad quality high costs and difficulty of competition with exported board.**
- 6- Oldest of some main parts from machine with no ability to repair it specially cleaning equipment.**
- 7- Some equipment in shutdown and use another equipment especially vacuum system equipment and parts from drying system and condensate collection and fiber and water re wrapping equipment.**
- 8- Damage in wet part press and use another roll with bottom efficiency.**

The following example show the machine status when operated from (1/11/2004 to 1/12/2004) the result was:

- Operation days 30 day**
- Production days 8 day.**
- Shutdown days 22 day**

Shut down detailed:

- Electricity power supplying was stopped 12 day.**
- Mechanical, electrical and operation resonates 10 day.**
- Expected operation capacity was 30 ton per day.**
- Inquired production capacity 7 ton per day.**
- Design capacity 60 ton per day.**
- Daily enquiring ratio 23%.**
- Design capacity enquiring ratio 12%.**

This show the bad status of machine which required to make a program to improve it to reach the design capacity.

3- Technical paths and the expected improving works:

The technical paths to production line and the improving work showed below:

3-1. Low grade waste paper line with 20 ton / day capacity consist from:

- Pulper with 12 m3 capacity ST3 type with light blemish hunting tools (rager) and janker. And agetater with drain pump and iron conveyor to feeding the pulper with paper waste and control instrument to full and drain the pulper.

- Drain chest with 30m3 with agetater and drain pump and control instrument.

- Pulp high density cleaner no. /1.

- Pulp defleker no /1.

- Pulp screening shaker.

- faibrizer no./1

- Mixing chest with (30 m3) capacity with agetater and pump with control instrument to ratio and flow and level.

- Nylon and plastic material Disperger crumbling unit.

- Mixing chest with (30 m3) capacity with agetater and pump with control instrument to ratio and flow and level.

- Ratio mixing boxes with control instrument to ratio and flow and level.

Expected improving work:

- Exchange iron conveyor.

- Exchange pulper and its accessories.

- Exchange dump chest and pulp storage pump.

- Exchange pulp high density cleaner.

- Exchange pulp defleker and fiber purifiers.

- Over haul to nylon and plastic material Disperger crumbling unit

- Over haul to pumps, valves, and agetaters.

- Maintain ratio and flow mixing box with control instrument and chest level

- Check the motor and exchange the damaged.

3-2 High grade waste paper line with 25 ton / day capacity consist from:

- Pulper with 12 m3 capacity ST3 type with rager and janker. and agetater with drain pump to pulper and iron conveyor to feeding the pulper with paper waste

- Drain chest with 30m3 with turn over and drain pump and level control Instrument.

- Pulp high density cleaner no. /1.

- Pulp defleker no /1. E1K type

- Pulp vibration screen no.1.

- Faibrizer no. /1

- Storage chest with (30 m3) capacity with agetater and pump with control instrument to ratio and flow and level.

- Mixing boxes with control instrument to ratio and flow and level.

Expected improving work:

- Exchange iron conveyor.

- Exchange pulper and its accessories.

- Exchange dump chest and pulp storage pump.

- Exchange pulp high density cleaner.

- Exchange pulp defleker and fiber purifiers .

- Over haul to pumps, valves, and agetaters maintain ratio and flow with control instrument and chest level

- Check the motor and exchange the damaged.

3-3 Imported pulp line:

With 25 ton / day capacity consists from:

- Pulper with 12 m3 capacity ST3 type with drain pump and iron conveyor to feed the pulper

- Drain chest with 30m3 with agetater and drain pump and level controller.

- Pulp high density cleaner no. /1.

- Pulp defleker no /1. E1K type

- Pulp storage chest with agetater and pump and with cons. % regulator and level controller.

- Disc refiner DSR1 no./2.

- Soften pulp storage chest with agetater and drain pump

- Mixing boxes with control instrument to ratio and flow and level.

Expected improving work:

- Exchange iron conveyor.

- Exchange impeller.

- Exchange pulp high density cleaner.

- Exchange pulp defleker.

- Total maintenance for disc refiner DSR1 no./2.

- Exchange chests pulp pump.

- Maintain the agetaters of chests pulp.

- Exchange or maintain ratio and flow control instrument.

- Check the motor and exchange the damaged.

3-4 Local pulp line :

With 60 ton / day capacity consists from:

- Dump chest with 45m3 with turn over and drain pump and cons. % regulator and level controller.

- Disc refiner DSR1 no./2.

- Pulp storage chest with agetater and pump and cons. % regulator.

- Mixing boxes with control instrument to ratio and flow and level.

Expected improving work:

- Exchange pulp preparation pump.

- Repair agetaters of chests.

- Total maintenance for disc refiner no./2 exchange the damaged by new .

- Check the motor and exchange the damaged.

- Exchange or maintain ratio and flow control instrument.

3-5 Machine chests:

It includes:

- Machine chest for top layer no./2, each chest capacity 30 m³ with agetater no./2, and drain pump no./1, cons. % regulator and level and ratio control.
- Machine chest for bottom layer no./1, each chest capacity 30 m³ with agetater no./1, and drain pump no./1, cons. % regulator and level and ratio control.

Expected improving work:

- Exchange all chests pumps.
- Maintain or exchange the agetaters for all chests.
- Check the motor and exchange the damaged.
- Maintain or exchange all control valves and level control instrument.

3-6 Recovered Brock system

It consists from:

- Pulper under the presses to wet brock with agetater ST3 type and drain pump and concentration and level control instrument.
- Pulper under the calendar to dry brock with agetater ST3 type no, /1 and drain pump and concentration and level control instrument.
- Pulp defleker no /1. E1K type
- Pulp high density cleaner.no./1.

Expected improving work:

- Exchange pulp pumps.
- Maintain or exchange the agetaters .
- Install new defleker.
- Install new high density cleaner
- Exchange concentration control instrument and control instrument.

3-7 Fibers and water recovered system:

It consists from:

- Returned water chest to top layer pulp with its accessories.
- Returned water chest to bottom layer pulp filler and its accessories.
- Seetning pump no. /1.
- Disc fibers recovered system.
- Filtered water chest with two type purity and fog with its accessories.
- Recovered pulp collection tank with mixer.
- Recovered water pumping and distribution to reusing it in pulp and washing and drying and showers to forming cylinders wires.

Expected improving work:

- Fulfill a new fiber recovered unit instead of the old one.
- Exchange or maintain the transporting pump of recovered water.
- Install seetnning pump.
- Maintain the valves of transporting line and cleaning showers.

3-8 Apoarch flow system

This system consist from similar seven units from work aspect and component where each unit feed one forming cylinder or more according produce type and used pulp.

Each unit consists from:

- Flow and pressure control valves and the pulp amount which fed to forming cylinder.
- First fan pump no. /1.
- Low density cleaner first stage no. /2.
- Second fan pump no. /1.
- Pressure strainer no. /1,
- Vibrating screen with 0.75 m3 capacity no./1.
- Dilution water line and extraction pump.
- Top layer refiner DSR1 no. /1.
- Bottom layer refiner DSR1 no. /1.

Expected improving work:

- Fulfill new pumps for first and second stages and install it instead of the old
- Low density cleaner.
- Maintain rotary pressure strainer.
- Fulfill and install vibrating screen to pulp.
- Fulfill and install refiner no. /2 DSR1 type instead of the lifted one.
- Exchange the level and flow control instrument by new and modern one and connect it with automatic control system to control the operation condition and production quality.

3-9 Vacuum system

It consists from two unit:

- High speed fan to make vacuum pressure to vacuum slice at press stage in forming cylinder.
- Central turbine vacuum pump to make vacuum pressure to press and vacuum box for felts.
- Plastic and metal pipe for connection.

Expected improving work:

- Exchange vacuum fan by new one.
- Maintain turbine vacuum pump and fulfill transport movement gear box.
- General maintenance for connection lines and its valves.

3-10 Forming system

The machine include seven forming system form through it board layer with weight between 80-100 gm /m2 some of the forming system input in operation depend on required board type and its weight and pulp type used.

Each system consists from:

- **Forming cylinder chest Vat.**
- **Forming cylinder.**
- **Fiber direction cylinder.**
- **Stable level tank.**
- **Connect and distribution lines.**
- **High pressure cylinder Couch Roll.**
- **Whole lip and its key to control the pulp amount.**
- **Pulp level organizing plate inside cylinder chest.**

Expected improving work:

There are two suggestions to improving work:

First: eliminate the currently system and exchange it by install three forming system fordrineer type as paper machine, the board will be formed from three layers similar or different according to the required type or the used pulp.

Second: enhance the systems and use forming cylinders with vacuum system in each one to enhance forming process.

3-11 Presses and felts tensioning and gaied roll.

It's consist from 4 presses, two changed to operate the machine, other damaged.

Expected improving work:

- **Exchange presses rolls.**
- **Repair felts tensioning and direction roll.**
- **Exchange couch rolls for forming cylinders.**

3-12 Drying system

This system depend on heat exchanging principle through no. 38 drying cylinder with 1.5 m diameter and feeding by 3 bar steam and condensate draw in addition to drying cylinder MG type 5m diameter feeding by 3 bar steam.consist from :

- **Cooling cylinder no./2 in drying system end.**
- **Hot air pushing system inside the dryer to deposal from vapors and drying the dry part felts.**
- **Vapor drawer's fans from dryer.**
- **Pipe net to feeding steam and collection condensate with head connection to cylinders.**
- **Condensate tank and returning pumps no./2.**
- **MG cylinder heating system which feeding by 12 bars steam.**
- **Dry part felts tensioning and gaied roll.**

Expected improving work:

- **Total maintenance for steam system and condensate lines and collection tank and exchange condensate pumps and steam separators.**
- **Repair drying cylinder MG type.**
- **Repair felts tensioning and gaied roll.**
- **Fulfill and install hot air ducts.**
- **Repair felts drying system and vapor draw fans.**

- Repair damaged parts from drying cabin Hood.
- Improve the rope system.

3-13: Coating and smoothing system

A- Coating and surface sizing system

Coating system consist from coating unit Bill Blade type provided by Swedish Inventing co. to get elementary coat layer weight 6-8 gm/m² for one or two face, and connect with it surface sizing press to treat the board by starch.

Expected improving work:

- Exchange the coating system by new one may coat the board by layer with weight between 15-25 gm/m² to produce new type and install it.

B - Smoothing system

Consist from calendar consist from bottom four iron cylinders Nipeo to get the carton smoothnece.

Expected improving work:

- Exchange calander by modern type to get the required smooth without loss in thickness or strength of carton.

3-14 Winding cylinders

It consists from winding cylinder and winding spools no. /10.

Expected improving work:

- Total maintenance for winding cylinder and its accessories.
- Total maintenance winding spools and amend crooked one.

3-15 Main electrical crane

Expected improving work:

- Total maintenance for crane no. /2.

3-16 lubrication and hydraulic system

It consist from central hydraulic system which rise and down cylinder the presses. And the central lubrication system which include oil tank and returning pump no. /2 and oil filters with water separation instrument from oil by centrifuge principle.

Expected improving work:

- Total maintenance for hydraulic system include pump and connection pipe.
- Total maintenance for lubrication system fulfills new pumps, exchange distribution valves group.

3-17 Winding system

There are winding to production with net width 320 cm to rewinding the production to the required measures.

Expected improving work:

- Total maintenance for winding from mechanical and electrical aspect and all necessary specially disc slice and its holders.

3-18 Wrapping and numbering and weighting system

It consists from ground balance to weight production after cutting. Winding process

Expected improving work:

- Exchange ground balance by new one.**
- Fulfill and install numbering system to marking, print data on reels after winding**
- Fulfill and install reels winding machine and past trade mark.**

3-19 Cutting system

It consist from cross cutters no./2 to cut production to sheets after winding according required measure.

Expected improving work:

- Total maintenance for cutters.**
- Install count and mark to cut production sheets.**
- Fulfill and install wrapping machine to bonds and past the trade marks.**

3-20: Core making machine by widely winding method

There are old machines to produce core by widely winding method but low quality.

Expected improving work:

- Install new machine work by spairal winding system with its accessories which include cutting machine to board according request**
- Glue preparing unit which used in core production.**

3-21 products and raw material handling and transporting system

These tools unavailable in work therefore must fulfill:

- 1- Fork lift with (2.5 ton) capacity no. /2.**
- 3- Clamp lift with (2.5 ton) capacity no. /1. .**
- 4- Shuffler to moving paper waste.**
- 5- Rebuilding sliding lines to move production reels.**
- 6- Manual jacks capacity $\frac{1}{2}$ and 1 ton no. /2 to for each type.**

3-22 Chemical preparing system

It includes:

A- Aluminum sulfate preparing unit with 10 ton per day capacity, it consist from

- Aluminum sulfate feeding silo no. /2.**
- Glass fuse tube no./2 and dissolving water sprayers.**
- Aluminum sulfate collection tank with concentration measure instrument.**
- Pump no. /2 to drain and delivered the aluminum sulfate to daily using tank.**
- Flow instrument to aluminum sulfate adding lines and level instrument**

Expected improving work:

- Fulfill and install glass dissolving tubes no. /2 with its accessories.**
- Exchange drain pumps.**

- Exchange flow instrument and level control and PH measuring instrument.

4- Fulfilling direct and undirected technical services to project with demonstrate its quantity and cost:

The following table shows the technical services to project with its quantity and cost and availability percent:

No.	Service type	Required amount to one ton	Unit cost in dinar	Total cost dinar	ready-made	Notice
1	Water	70 m3	8	560	30	
2	Electricity	2.8 megawatt	3000	8400	20	
3	Steam	4 ton	2500	10000	50	
4	Pressed air	250m3	4	1000	25	
5	Industrial water treating	20m3	4	80	0	
6	Other service(storage, lab extinguishing)	----	----	10000	75	
Total technical service per ton : 30040 dinar / ton						

Fulfilling above industrial service availability its ready-made need to rehabilitate to enhance its capacity. As detailed in appendix no. (4)

5-Production Capacity of board machine:

Machine design capacity: 18000 ton per year distributed according to market pointers and local need as follow

10000 lainer

4000 ton duplex

1000 ton triplex

1000 ton manila and copybook cover

2000 ton common board

6- Human Resources:

No.	Employ address	Certificate and service years	Required no.
1	Production manger	Engineering or chemistry B.C. have experience 10 year as low limit	1
2	Production engineer	Engineering or chemistry B.C. have experience 5 year as low limit	1
3	Maintenance engineer mechanic	Mechanical Engineering B.C. have experience 5 year as low limit	1
4	Maintenance engineer electricity and electron	Electrical Engineering B.C. have experience 5 year as low limit	1
5	Maintenance engineer instrument	Electrical Engineering B.C. have experience year as low limit	1
6	alternator engineer	Engineering or sciences B.C	4
7	Operation shift and lab. Maintenance chef	Technical diploma mechanic/electrical/chemical analysis	16
8	Technical observer	Technical diploma mechanic/electrical/chemical analysis	25
9	Assistance of technical observer	Technical diploma mechanic/electrical/chemical analysis	50
10	Technical operator	Technical diploma mechanic/electrical/chemical analysis	75
11	Technical worker	Intermediate study as low limit	100
12	Crane driver	Intermediate study as low limit	8
13	Wrapping machine operator	Intermediate study as low limit	12
14	Core machine operator	Intermediate study as low limit	5
Total no.			300

7- Economic benefit:

According to machine production and market pointers to quantity and quality. Benefit study must done as follow

7-1 Common board

aimed quantity 2000 ton by using 100% paper waste, 4% aluminum sulfate, 1% rosine Sizing

Therefore:

- Waste pulp cost 1250kg	125000 dinar per ton
- Aluminum sulfate cost 40 kg/ton	24000 dinar / ton
- Rosine cost 10 kg / ton	10000 dinar / ton
- Raw material cost	159000 dinar / ton
- Other costs	265000 dinar / ton
- Total cost	424000 dinar / ton
- Sailing price	720000 dinar / ton
- One ton profit	296000 dinar / ton
- Total inquired profit for production and marketing 2000ton	592000000 dinar/ton

7-2 Manila and copybook cover board:

Required amount 1000 ton per year by using the following: 70% imported pulp, 4% aluminum sulfate, 1% rosine size 0.25% stains

- Total raw material cost except dyes	1119518
- Other costs	265000 dinar / ton
- Total cost	1384550 dinar / ton
- Sailing price	1650000 dinar / ton
- One ton profit	265450 dinar / ton
- Total inquired profit for production and marketing 1000 ton	265450000 dinar / ton

7-3 triplex board

Required amount 1000 ton per year by using the following: 70% imported pulp, 30% waste pulp, 4% aluminum sulfate, 1% rosein size

- imported pulp 710000 dinar according imported pulp price	1000000 dinar/ton
- Waste pulp 375 kg with 37500 dinar	1000000 dinar / ton
- Aluminum sulfate 40 kg price 24000 dinar	600000 dinar / ton
- Rosien size 10 kg price 1000 dinar	1000000 dinar / ton
- Total raw material cost	780500 dinar / ton
- Other costs	265000 dinar / ton
- Total cost	1046500 dinar / ton
- Sailing price	1500000 dinar / ton
- One ton profit	453500 dinar / ton
- Total inquired profit for production and marketing 1000 ton	453500000 dinar /ton

Liner board:

80% from waste pulp. 20% from imported pulp, 4 % aluminum sulfate, 1% rosein size.

- Paper waste 1000 kg with price 10000 dinar with ton price 100000 dinar
- 220 kg imported price 220000 dinar with ton price 1000000 dinar
- Aluminum sulfate 40kg price 24000 dinar with ton price 600000 dinar.
- Rosein size 10 kg price 10000 dinar with ton price 1000000 dinar
- Total material cost for one ton 354000 dinar.
- Other production costs 265000 dinar/ton.
- Total cost 619000 dinar/ton.
- Sale price 675000 dinar/ton.
- Profit net 56000 dinar/ton.
- Profit net for production and marketing 10000 ton liner per year is 560000000 dinar at year.

Duplex board:

25% from white imported pulp, 75% paper waste, 4 % aluminum sulfate, 1% rosein size.

- Paper waste 900 kg with price 90000 dinar with ton price 100000 dinar
- 260 kg imported price 292500 dinar with ton price 750 dollar/ton
- Aluminum sulfate 40kg price 24000
- Rosein size 10 kg price 10000 dinar
- Total cost for one ton 416500 dinar.
- Other production costs 265000 dinar.
- Total cost 6815000 dinar/ton.
- Sale price 825000 dinar.
- Profit net 143500 dinar/ton.
- Profit net for production and marketing 4000 ton duplex =20482 x4000ton = 574000000 at year.

Total annual profit when production plan is executed as following:

Production type	Inquired capacity at year	ton Profit / dinar	Total inquired profit
Lainer board	10000	56000	560000000
Duplex board	4000	143500	574000000
triplex board	1000	453500	453500000
manila and cover board	1000	265450	265450000
common board	2000	296000	592000000
Total income from profit			7610950000

7-7 Work productivity:

- Employee number to work on project after rehabilitee 300 employee.
- Monthly salary rate for one employee 450000 dinar / month.
- Monthly salary amount $450000 \times 300 = 135000000$ dinar / month
- Annual salary amount 135000000×12 month = 1620000000 dinar.
- Total annual profit from production program for quantity and quality = 7610950000 dinar
- Therefore work productivity = $7610950000 / 1620000000 = 4.7$ dinar per dinar. At 100% capacity from design capacity.

7-8 material productivity:

The following table show the quantities and values for material to determine the material productivity :

Production type	Production quantity ton/year	Used material value dinar/year
Lainer board	10000	3440000000
Common board	2000	318000000
Duplex board	4000	1666000000
manila and cover board	1000	1119518000
triplex board	1000	7815500000
Total	18000	14359018000

-therefore the productivity of material was = $7610950000 / 14359018000 = 0.53$ dinar per each used ton from raw material, at capacity 100% from design Capacity.

7-9 rehabilitation targets:

The main aim from rehabilitee process is:

- 1- rise the capacity to design capacity 18000 ton/year from following produces:
 - Lanier board weight 180-260 gm/m²
 - Normal Duplex, coated Duplex board weight 180-500 gm/m²
 - common board weight 300-500 gm/m²
 - manila and cover board weight 180-240 gm/m²
- 2- Used higher ratio from waste paper pulp instead of reed pulp because its low cost compared with others.
- 3- Produce all board type to produce wrapping and packaging purpose or

for printing by using available raw and connect control system by computer to control on quality and reduce the shutdowns and bad production.

4- Reduce losses in raw material through production stages and use energy correctly such as water electricity...etc.

5- Improve or exchange some of industrial services such as treatment and produce water and air and steam to enhance line effective, and provide laboratories by new instrument.

6- Improve this industry to compete with modern industries and technical staff which need refresh information and skills through courses and visits to other factory.

7-10 what must investor do?

1- Fulfill the required sum to rehabilitate process 20000 million dinar.

2- He must do technical detect to site and instrument and technical details and required quality to prepare plane which inquire the design capacity.

3- He must consider the targeted capacity and required quality by using higher ratio from paper waste pulp to reduce costs, energy and chemical additions.

4- Making production plane which include produce required type in local market or neighbor states to marketing it with respect types which have high financial income.

5- Make study to industrial services such as water production and treatment, steam pressed air units and others. To appoint its active level to appoint the rehabilitate works which supply the lines by this services according to inquired capacity after rehabilitate process.

6- Use the available abilities and energies such as storages and laboratories and other and enhance some lab. Industrial.

7- Make a rehabilitate and practicing plane to national staff which will use in production line operation.

Appendix No. (3) Eggs Trays Machine line

1) General technical feature for machine:

Machine model 1976 by Hartman co. Denmark		
Machine capacity	33	Million tray at year
Machine speed	90	Configuration /min
Tray weight	75	Gm
Tray dimension	17	Libra
Raw material need	8	Ton/ day newspaper and printed waste
Drying system	Generated hot air in firing oven	
Used fuel in drying	Gas oil	
Main motion depend on DC current with 15 KW power		

2) Currently machine status:

The machine in shutdown from some years because of no spare parts special mould and shelves.

at July 2005 total maintenance was occurred for machine with local shelves but the result not good, product quantity was 7500 tray in 6 day in compare with 140000 tray / day its capacity.

The difficulties are:

- 1- Unstable electric power supply from national net.
- 2- Big lack in spare parts for machine as mould and forming mish and shelves just local one.
- 3- The isolation of dryer doors is no effective therefore its heat transfer to machine hole which have not exhaust fans, the old damaged.
- 4- Management problem in shifts times and financial problem.
- 5- Lack in experience at operation and maintenance staff because the long shutdown period.

To rebuild the machine required treat for above reasons.

3- Technical paths and expected improving work

3-1 machine feeding by pulp system:

- Mix tank with agitator and pump.
- Machine chest with agitator and pump and pulp cons.% controller .
- Drying and return water storage.

Expected improving work: general maintenance.

3-2 tray forming mould system (moulding machine)

Consist from following mould:

- Forming mould group 12 mould.
- Tray picks up mould group 9 mould.
- Forming vat 1m³ capacity, with pulp level systems.

Expected improving work:

- Total maintenance for mould and moving bars and bearing.
- Exchange damaged part from mould groups and forming wires.
- Exchange damaged vacuum ducts.

3-3 vacuum system

Consist from:

- Vacuum pump.
- Water extraction from vented air.
- Vacuum control valve.

Expected improving work:

- Exchange old vacuum pump.
- Total maintenance for other.

3-4 Drying ovens

Consist from

- Burner work with gas oil.
- Air pushing and recycle fan to drying.
- Burner air fans.
- Daily fuel tank 3m³ capacity.

Expected improving work:

- Rebuilding oven.
- Total maintenance to fans and probes and electrical panels.

3-5 Dryer

Consist from:

- Shelves loading and moving chain 420m long.
- Tray loading shelves 480 shelf with its accessories.
- Alarm system for shelves slip.
- Dryer air temperature controller.

Expected improving work:

- Exchange all chain.
- Exchange all shelves with its accessories.
- Maintain alarm system.
- Put ace pest ropes to prevent heat leakage from dryer.

3-6 Tray staker :

- It so bad not work correctly.
- Accounting and labeling tray system.

Expected improving work:

- Exchange all staker.
- Install accounting and labeling tray system.
- Enhance tray wrapping.

3-7 Machine sewerage water draw

Consist from:

- Probes for water level.
- Immersed pump 30m³ capacities.

Expected improving work:

Install all above equipments.

3-8 Machine central lubrication system

It need general maintenance and dealing for leakages.

3-9 Oil storage system

Consist from:

- Tank 30m³ capacity to gas oil.
- Fuel supply pump from oil storage to daily tank and filling the main tank.

Expected improving work:

- Total maintenance.

3-10 Machine hole and its accessories.

Its need:

- Ceil repair.
- Exchange vapor and gases fanes.
- Put new door to it and tray storage.
- Repair final production loading stations.
- Repair and coat all walls.

4- Machine direct and in direct technical services.

No.	Service	Required quantity	Cost	Note
1	Pulp supply to machine	7.5 ton/day	25000 dinar/ton	Pulping and purification cost
2	Water	10 m3/ton	8 dinar/ton	Available service
3	Air	1 m3/ton	4 dinar/ton	Available service
4	sewerage	5	4 dinar/ton	Available service
5	Electricity	750kwatt/h	3000 dinar/ton	Available service
Total	28016 Iraqi dinar/ton equal to 1330 tray			

The indirect services include safety and library and workshop, raw material storages which available in factory.

One tray will bear a cost of 12 Iraqi Dinar from technical services costs therefore must formulate new formula to cover this with the investor.

5- Human Resources:

The rehabilitatee of line need to the following staff which available now but need courses in site or in neighbor states

No.	Employ address	Certificate and service years	Required no.
1	Production engineer	Engineering or chemistry B.C. have experience 5 year as low limit	1
2	Maintenance engineer mechanic	Mechanical Engineering B.C. have experience 5 year as low limit	1
3	Technical observer operation/mechanic/electrical/instrument	Technical diploma have experience 3 year as low limit	4
4	Technical observer shift chef operation/mechanic/electrical/instrument	Technical diploma have experience 3 year as low limit	12
5	Technical operator operation/mechanic/electrical/instrument	Secondary study as low limit	24
6	Technical worker	Intermediate study as low limit	20
7	Storage observer	Storages management diploma	1
8	Storage and loading workers	Intermediate study as low limit	4
9	Crane driver	Intermediate study as low limit	1
10	Sample inspector	Secondary study as low limit	1
11	Cleaner	Primary study as low limit	1
Total			70

This number was calculated with 3 shifts work.

6- Rehabilitation targets:

1- Enhance machine operation state to reach design capacity 33 million tray with 300 work day at year and four shift work in alternation system which mean the daily production 110000 tray.

2- Enhance tray quality through enhance machine and by using suitable material through high ratio from newspaper waste to make tray more strength in addition to waxing and calandring.

3- Inquiring the required quality from tray 17 Ibs weight 75 gm by original mould to machine with 15 Ibs mould.

4- Practicing staff specially leading one to increase their experiences trough practicing program and site visits to similar factory in neighbor states.

Appendix (4) Industrial Services Units

1. Water Treatment Plant

- Installation Year: 1979
- Supplier: Sulzer Switzerland Co.
- Capacity: 4400 m³/hr of raw water got from the river.
- Produced Water
- Clarified Water: 2480 m³/hr producing potable water.
- Treated Water 1920 m³/hr.

Specifications of Raw and Produced Water

Test	Unit	Annual Year Production average of Raw water	Produced Water
Acidity	pH	8.1	6.5-8.5
Total Hardness	Mg/liter	567	300
Ca Hardness	Mg/liter	286	188
Chlorides	Mg/liter	546	546*
Total Dissolved Salts	Mg/liter	1376	1376*
Turbidity	Mg/liter	40.5	Zero

- It can be reduced the value by 10 degrees adding lime and soda ash which is idled now due to unavailability of dissolving system.

The clarification process can be achieved through settling the suspended matters in two concrete basins of 3950 m³ per each one of them, drain mud through rotating scraper and mud pumps in the bottom of the basin of a productivity totaled 550 m³/hr in addition to mud circulation pumps during sedimentation process of 150 m³/hr.

It can be directed clarified water treated water passing it through clarified water basin and adding H₂SO₄ acid to amend acidity and then passing it through sand filter towards treating water collecting basin of 3000 m³ and then it would be distributed to the factory units through pumps totaled 3 of 960 m³/hr per each pump. While the clarified water it will be dropped to the clarified water collecting basin of 2000 m³ through which it will be pumped to the factory through three pumps of 1240 m³/hr per each pump.

Capacity of the tank is 650 m³ and then it will be pumped to potable water pipelining works of 220 m³/hr.

Current unit requirements & overran suggested Rehabilitation Works:

- Fulfill chemical materials dissolving system.
- Fulfill vertical pumps to draw raw water from river no./3 with mentioned capacity.
- Exchange scrubbers of clays in water purification chests.
- Exchange mud drain lines and valves with rebuilding chests and wheels of clays scrubber's bridges.
- Repair or exchange all level instrument and meters and pointers.
- Total maintenance for filters and exchange nozzles and sands.
- Fulfill air compressor to backwashing for filters.
- Maintain factory supplying by treated water no./1 and install two pump instead of damaged lifted pumps with 960 m³/hr for each pump.
- Fulfill purified water pump no./3 with (1240 m³/hr) because absence of original pumps.
- Chloride injection system to drink water (900 gm / hr).
- Maintain sand filters to drink water by exchange nozzles and sands.
- Expected costs to unit rehabilitee (650) thousand US dollar.

2- Industrial water treatment unit

This unit work to drained industrial water treatment from factory and decrease pollute concentration to environmental limits.

- Install date : 1979
- Supply company : sulzer company
- Design capacity: 4400 m³/hr from entered water to unit.

drained entered water to unit properties

Inspection	Measurement unit	Entered to unit	Disposal to river according environmental limits
Ph	Ph	7.4	9-6
Total dissolved salts	Mg/liter	1618	500-1500
Suspension material	Mg/liter	252	60 as higher limit
Organic material	Mg/liter	266	100 as higher limit
COD	Mg/liter	50	60 as higher limit
BOD5	Mg/liter	15	40 as higher limit
Chlorides	Mg/liter	595	600 as higher limit
Sulfates	Mg/liter	445	400 as higher limit
Iron	Mg/liter	0.5	2 as higher limit
Phosphate	Mg/liter	0	3 as higher limit
Free chlorine	Mg/liter	0	0

Returned to unit three types from water which:

2-1 Rain sewerage and cooling water

It is pumped to river without any treating because no pollutions with 5100 m³/hr capacity through four vertical pump with 2000 m³/hr capacity and two 200 m³/hr capacity.

2-2 Whit water sewerage

It come from paper production department and pulp filtration department it contain some cellulose fibers with 2900 m³/hr which pumped to purification chest to white water through four pump two with 500m³/hr and two with 950m³/hr to each pump.

Fibers and fines precipitate in purification chest by adding Aluminum sulfate and poly electrolyte and with scrubber in chest bottom.

The precipitated fiber drawn to filters no./2 to separate water and collect out of unit and move it to production department.

Purified water is drained to river when its PH be within environmental limits through sulfate and calcium carbonate injection system.

2-3 Heavy chemical water sewerage

It come from pulp, boilers, soda recovery, and chemical preparing departments to

paper production department and mixed with drained heavy water from other department. its maximum capacity 960 m³/hr which pumped through four vertical pump 200m³/hr capacity for two pump and 380m³/hr capacity for two other pump, the water pump to aeration chest to biological treatment with aeration fans no./4 with add urea and phosphate then it move to lagon chest to separate purified water from solid spices which precipitated and drawn by pump with 460m³/hr capacity installed on mobile bridge on precipitating chest and pump to whit water chest filters to separate water, purified water pump to river after chloride addition.

Current unit needs and suggested rehabilitant works required:

- Fulfill and install pumps instead of damaged pump.
- Maintain lagon and purification chest bridge and scrubber.
- Fulfill and install chemical materials injection system and PH measuring instrument.
- Total maintenance for filters.
- Total maintenance for aeration fans.
- Inspect and repair discharge pipe because of leakages and corrosion.
- Repair or exchange date instrument and meters and signals.
- Open chocks on drain net from production and service department and repair some main holes.
- Expected cost for Rehabilitation (500000) US dollar.

3- Steam generation unit

- Install date : 1979
- Supply company :Babcook -France
- Design capacity: 100 ton steam/hr 40 bar pressure. 400 c temp,
- It consist from two boilers package type 50 ton steam/hr capacity for each one 40 bar pressure. 400 c temp,
- Used fuel: heavy oil or diesel oil or natural gas if was available it need 100 liter from heavy oil to one ton steam.
- The boiler generate 40 bar steam to generate electricity, the out steam will be 12 or 3 bar which supplied to paper and board machines and if turbine in shutdown 40 bar steam will send to pressure reduction station to convert it from 40 to 12 bar or 3 bar if production in shutdown, steam will send to condensers.
- Fuel storage capacity 3200000 liter.

Current unit needs and suggested rehabilitation works required:

- Boiler no. (1) stopped because of:
 - Reduction station is damaged
 - Wetting station valves is damaged.
 - Steam condenser in shutdown because of chock in its tubes.

- No feeding pump to boiler with 140m³/hr capacity 70bar pressure no./2.
- Fuel heaters is damaged.
- Must rise reverse osmosis unit capacity and deminraized and treated water pump to operate condenser.
- Boiler no. (2)
- It is stopped because it need to rebuilding include all tubes and thermal economist and steam traps.
- No chemical material injection system to boilers :
- Phosphate pump no./2 50liter/hr capacity, 60-70 bar pressure.
- Hydrazine pump no./2 30liter/hr capacity, 3 bar pressure.
- Expected cost for rehabilitation (1000000) US dollar.

4- Water demineralization unit.

- installation date : 1979
- Supply company: Lorgi. Germany
- Design capacity: 140 ton /hr.
- This unite remove dissolved salts ions in positive and negative ion exchangers principle from water which have total hardness (20-25) mg/liter,to produce water without hardness, in addition to treat the condensate water from steam, and vent all dissolved gases in water before boilers.

Demineralized water and required rehabilitee works

- There are no heat exchangers to cooling condensate water which return from paper and rise hardness reduced water temperature before gases venting system.
- There are no lined hydrochloric acid tank no./2 40m³ capacity for each one and no standard tank and injection system to dilution purpose.
- Re – life disposal water neutralization tank to protect industrial sewerage water from corrosion.
- Fulfill pump to drain hydrochloric acid from tanker to tank with 30m³/hr capacity.
- Lack in pumps no./2 to transport treated water gases venting unit 50-60m³/hr 6 bar pressure.
- Fulfill a compressor for back wash for ratings in ion exchangers.
- Fulfill solid plastic lined pipes to positive ion exchangers.
- fulfill pumps to storage treated water no./2 with 140m³/hr capacity 7-10 bar pressure.
- Fulfill tanker to supply acid capacity 10 ton.
- Expected cost to rehabilitee (350000) US dollar.

5- Reverse osmosis unit

- Installation date: 1985
- Supply company: korita – Japan.
- Design capacity: 50 ton /hr.

It consists from:

- Sand filters no./2 with protection filter system.
- Chemical additions injection system (hexa phosphate, hydrochloric acid, or sulphuric acid and chlorine).
- Pressing tanks which contain reverse osmosis cells no.13 and 6 cells capacity 1m long.
- Produced water tank 300 m³ capacity and water pumps to pressing tank no./2 70m³/hr and 40 bar pressure.

Required rehabilitation works

- All cells damaged and need change.
- Exchange sand filters.
- Fulfill and install pump no./1 70m³/hr 40 bar pressure.
- Fulfill measuring instrument to measure hardness and ph and electrical conductivity.
- Expected cost to rehabilitation (150000) US dollar.

6- compressors unit:

- Install date: 1979
- Supply company: sulzer
- Design capacity:

It produce two type from pressed air as following:

- Dry air to instrument after dryer contain silica and electrical heater through three compressor 750m³/hr capacity and 7 bar pressure.
- Wetted air to service purpose in all plant department through three compressor 1450m³/hr capacity 7bar pressure for each one.

Current unit status and required rehabilitation works :

- Total maintenance to air compressor with drying system and cooling water.
- Fulfill and install new compressor instead of wetted air.
- Check air distribution system and exchange damaged parts.
- Expected cost to rehabilitate (650000) US dollar.

7- Central air condition unit

There are central air condition unit to all plant department, but a damaged

happened in compressors and site exchange units and hot and cold water lines, but this damaged so big therefore must re install new unit with 2200000 kcal.

- Expected cost to install new unit (1000000) US dollar.

8- Electrical power distribution unit

- Install date : 1979

- Supply company: simens

- Design capacity: 10 megawatt

- Industrial services and management and paper production department need 10 megawatt.

- Plant is supplied by electrical power from secondary south Omara station through feeders no. /2 capacity 33 kv. And through secondary converters in plant convert to 11 kv. Then to 380 volt and 4 kv.

- There are steam turbine generator in plant 10 megawatt capacity need 40 bar 400 c temp. steam to run and give 100 ton/hr with consumption to 12 bar and 3 bar steam to production department or condensers in shutdown.

- There are generator no. /2 with 500 megawatt for each generator work by diesel fuel to generate emergency power which work automatically when power supply failed.

Current unit status and rehabilitation works required:

- General maintenance to electrical power distribution unit

- The operation of steam turbine governed with steam quantity 100 ton/hr and 40bar pressure and 400 c temp. And consumption to 12 bar or 3 bar steam therefore must operate boilers to generate this quantity and operate board and paper machine continuously or condensers.

- Technical and engineering inspection process to steam generator.

- Fulfill generator 500 megawatt instead of one damaged generator.

- General maintenance to other generators.

- Basic battery 110 volt no. /52 to operate circuit separators for each converter at first operation and lighting department when electrical current from net failed.

- Expected cost to rehabilitate the unit (200000) US dollar.

9- Laboratories and quality control unit:

It consists from some laboratories:

- Central laboratory :

it contain some instrument and tools groups to check and analysis all raw material which used in production and final product test instrument and environmental tests to in and out water from industrial water treatment.

- Local laboratory to paper and board production department:

Check all product features, through its result the staff change the operation

condition and according to final test can isolate the bad product.

- **Local laboratory to water treatment unit :**

It do all test for in and out water to unit.

- **Local laboratory to boilers and R.O. and salt removing unit :**

It do all test for in and out water to these units to feed boilers according to required properties to prevent precipitation and chocks in boiler tubes and change condition according its results.

Current unit status :

There are some problems in laboratory instrument.

- **Expected cost to rehabilitate the unit (165000) US dollar.**

10- Storage unit

There are some specialist storages:

- **Cellules material storage which include :**

- **Paved ceiled for raw cellulose material.**
- **Paved no ceil yard to storage for raw cellulose material.**

- **Chemical material storage which include :**

• **Paved ceiled storage to chemical material which unaffected with temperature and moisture.**

• **Paved ceiled storage conditioned to chemical material which affected with temperature and cool, it have air conditioning unit connected with central air conditioning unit.**

- **mechanical spare parts storage :**

It paved storage with ceil and shelves to storage mechanical spare parts.

- **Electrical and instrument spare parts storage.**

Similar to mechanical spare parts storage.

- **Trucks spare parts storage.**

Similar to mentioned storage but it special to spare parts to mechanicals (fork lift, cranes, shufflers, etc).

- **General material storage**

It paved and ceiled storage to general material such as library, stationary and building material.

- **Oil and fuel storage**

It include fuel tank with all type: heavy oil, gas oil, benzene, lubrication oil.

- **Spoiled material storage**

It paved ceiled storage to all spoiled material to sale it.

- **complete production storage**

It paved ceiled storage to complete production from production departments then charging and marketing it.

Currently unit status:

Lack in transporting and loading tools such as fork lift, cranes, shuffler, etc.

- **No ability to run air condition unit to chemical material storage.**
- **Expected cost to rehabilitate the unit (350000) US dollar.**

11- Workshops:

It necessary to find specialist workshops to maintain the production equipment and instrument which include:

- **Mechanical workshop**

It contains general tool such as scrubbing, and perforation and welding and some special tool such as rolls adaptation and bending works for different metals with different measurements.

- **Electrical workshop**

It maintains all motors with all capacity such as winding and exchanging the motors and instrument and cards in electrical control.

- **Instrument workshop**

It maintains level, flow instrument and all control valves.

- **Mechanicals workshop**

It maintains all mechanicals and cars.

- **Carpentry workshop**

It does all carpentry works from cutting and smoothing and wood pressing and furniture making.

Current workshops status:

There are damaged and shortage in some workshop machines in addition to the shortage of, foundering in the workshop.

- **Expected cost to rehabilitate the unit (350000) US dollar.**

12- Safety and fire Fighting Unit:

There are several method to deal with fire which include:

- **Ground net in all plant aspect to deal with fire by water.**
- **Ceiling net to deal with fire by water in holes and offices.**
- **Manual extinguishers in all plant aspect to deal with fire by dry powder or CO2.**
- **Extinguishing cars no./2 to deal with fire by water or water and foam.**
- **All safety necessities to workers.**

Current unit status and rehabilitation works required.

- **There are some leakages and broken in ground net.**
- **There are lack and damaged in ground net water supply pump.**

- **One extinguishing cars be old, need new one**
- **Lack in manual extinguishers work by powder or CO2.**
- **Fulfill all safety necessities to workers.**
- **Expected cost to rehabilitate the unit is (150000) US dollare.**

Appendix (5)

Investment Law No. (13) of year 2006.

Unofficial translation

In the name of people

Presidency Counsel

Pursuant to what was approved by the Council of Representatives in accordance with provisions of Para (first) of Article (61) of the constitution and elapse of the legal period given in Para 5/A of Article 138 of the constitution ,the following law is promulgated

**No. (13) of 2006
The Investment Law**

Chapter One

Definitions

Article (1)

The following terms, wherever mentioned in this Law, shall have the following specific meanings unless the context indicates otherwise:

A: The Council :the Council of Ministers

B: National Commission for Investment: the commission established in accordance with this law responsible for drawing up the national policy and laying out its guidelines and monitoring the implementation of these guidelines and instructions in investment. It shall specialize in investment projects of a federal nature exclusively.

C: Region's Commission: The investment commission of the region responsible for investment planning and granting investment licenses in the region.

D: Governorate Commission : The investment commission of the governorate not organized in a region responsible for investment planning and granting investment licenses in the governorate.

E: The commission: The National commission for Investment or the Region's commission or the Governorate Commission as the case.

F: Chairman of the Commission: the Chairman of the National Commission for Investment.

G: The Project: the economic activity subject to the provision of this law.

H: The Assets: the tools, apparatuses, equipments, machineries, transportation means and office furnishings and appliances to be used for the project exclusively and the furniture and appliances of the hotels, tourist cities, hospitals, schools and colleges.

I: The foreign Investor: is the investor who does not hold the Iraqi nationality in the case of real person, and is registered in a foreign country in the case of a juridical or legal person.

J: The Iraqi investor: is the investor who holds Iraqi Nationality in case of real person, and registered in Iraq in case of a juridical or legal person.

K: Taxes and duties: all kinds of taxes and duties imposed according to applicable laws.

L: The designed production capacity: is the production capacity designed within a specific unit of the time (hour, day.....etc) in accordance to what is fixed in the documents incoming with the machine of the supplier and the feasibility study of the project.

M: Investment Portfolio: A collection of investments in shares and bonds.

N: Investment: is the investment of capital in any economic activity or project that results in a legitimate benefit for the country.

Goals and Means

Article(2)

This law aims at the following:-

First: To promote investment and transfer modern technologies in order to contribute to the process of the developing and enhancing Iraq, and expanding and diversifying its production and service base.

Second: To encourage the Iraqi and foreign private sector to invest in Iraq by providing the required facilities for establishing investment projects and enhancing its competitive capacities in the local and foreign markets for projects covered by this law.

Third: To develop human resources based on market demands and provide work opportunities for the Iraqis.

Fourth: To protect the rights and properties of investors.

Fifth: To expand exports and improve the balance of payments and balance of trade of Iraq.

Article 3

The following means shall be adopted to realize the objectives of this law:

First: To grant projects covered by provision of this law the necessary privileges and guarantees for its continuation and development by providing support in a way that enhances the competitive capacities of these projects in the local and foreign markets.

Second: To grant projects that obtained an investment license from the Commission, additional facilities and exemptions from taxes and duties in accordance with the stipulations of this law.

Chapter Two

The National Commission for Investment and the Investment Commission in the Regions and Governorates

Article 4

First: A Commission shall be established and called the “The National Commission for Investment”.it shall enjoy a juridical personality and shall be represented by the Chairman of the Commission or the person authorized by him. It shall be responsible for drawing up the national policies for investment and drawing up it's Plans, regulations as well as monitoring the implementation of these guidelines and instructions in investment. It shall specialize in strategic investment projects of a federal nature exclusively.

Second: The National Commission for Investment shall be managed by Board of Director comprised of nine member who must be competent, specialized, and hold a college degree that suits the speciality of the Commission. They must not have been sentenced for a felony or misdemeanor of moral turpitude or have declared their bankruptcy.

Third:

- A. Upon a request by the prime Minister, the Council of Ministers shall nominate a Chairman of the Commission at a grade of Minister and a Deputy Chairman at a grade of Deputy – Ministry for a period of five years and present them to the Council of Representative for approval.
- B. The prime Minister shall appoint four member for a period of five years at a Grade of Director General.
- C. The Prime Minister shall select three members from the private sector for five years after their nomination by Chairman of the Commission and specifying their compensations according to the bylaws.
- D. At the conclusion of the membership of any member of the Commission referred to in Paragraph (A and B) of this Article in cases not involving dismissal and resignation, the Prime Minister shall assign them to any governmental entity at the same grade. Those mentioned in (A) of this article shall be retired on pension when not assigned to a government position equivalent to their grade.
- E. The Council of Representatives may directly dismiss the Chairman of the National Commission for Investment and his Deputy, or upon a request by the Prime Minister for compelling reasons.
- F. The Council of Ministers may dismiss or replace any member of the Commission or replace him with others in case he does not adhere to the standards and regulations of the Commission.
- G. The Board of Directors of the National Commission for Investment shall meet at the invitation of its Chairman. The quorum of convening and adopting resolutions and recommendation shall be determined by absolute majority. The conduct of work shall be organized by by- laws issued by the commission.
- H. The National commission for Investment shall be connected to the prime Minister.
- I. The salary scale and entitlements of the Commissions employees shall be determined by a decision of the Prime Minister based on a proposal from the Chairman of the National Commission for Investment.

Fourth:

The Commissions headquarters shall be in Baghdad and it may appoint representatives in the regions and governorates.

Fifth:

The National Commission for investment shall draw up an overall national strategic policy for investment identifying the more important sectors and shall prepare a map of investment projects in Iraq in the light of the information it receives from the regions and governorates. It shall also prepare lists of investment opportunities in strategic and federal investment projects with initial information about these projects and making it available to those wishing to invest.

Article 5

First: The regions and governorates not organized in a region may form investment commissions in their areas. The latter shall enjoy the powers of granting the investment licenses, investment planning ,promoting investment and opening branches in their areas within the provisions of this law in consultation with National Commission for Investment to guarantee the availability of the legal conditions.

Second: The Investment Commission of the regions and governorate shall be composed of at least seven members including the chairman and the vice chairman of at least seven years of experience and competence and with a university degree appropriate to the specialization of the commission and not convicted in a felony or a misdemeanor involving turpitude or has declared his bankruptcy.

Third: The regions and governorates not organized in a region shall establish a mechanism of forming the investment commission of the region and the governorate and dismissing the Commission member in case of not adherence to the Commission regulations and standards.

Fourth: The Investment Commissions of the regions and governorate shall coordinate their work with the National Commission for Investment, and shall coordinate and consult with local governments regarding investment plans and facilities.

Fifth: The regions and governorates Commissions shall draw up their investment plan in a way that dose not contradict with the federal investment policy and shall prepare list of the investment opportunities in the areas that are subject thereto, with initial data about these projects and offer it to those wishing to invest.

Sixth: The regions Commissions shall be connected to the prime Minister of the region and is subject to the scrutiny of the regions Council. The governorate commission shall be connected to the Governor and is subject to the scrutiny of the governorate council in a way that does not contradict with the provisions of this law.

Seventh: Regions and Governorates Commissions board of directors shall convene upon an invitation from their chairman . The quorum of convening and adopting resolutions and recommendations shall be determined by absolute majority. The conduct of work shall be organized by by – laws issued by the Commission.

Article 6 :

In addition to ordinary correspondence, the Commission may adopt electronic mail with the official entities connected with the work and activity of the Commission through local networks or the Internet according to guidelines set by the Commission.

Article 7 :

- A- The Commission shall accept investment license requests for projects whose capital is not less than the minimum amount determined by the Council of Ministers or the Council of Ministers of region as the case, by a regulation issued based on a proposal by the Commission.
- B- The Commission must obtain the approval of the Council of Ministers before granting the license if the value of the investment project is more than two hundred and fifty million dollars.
- C- The Commission shall make its final decision concerning the requests of investment license within a period not exceeding (45) forty five days from the date of filing a request.
- D- The decisions of the Commission regarding the approved investments projects shall be obligatory for the purposes of this law.

Article 8 :

The Commission shall have an independent annual budget whose revenues shall be made up of its allocated amount in the State General Budget.

Article 9 :

The Commission shall promote investment through the following:-

First: Building confidence in the investment environment, identifying investment opportunities, and promoting and stimulating investment in them.

Second: Simplifying the procedures for registration, issuing of investment projects licenses, and following up existing projects and giving them priority in processing with the official entities. Completing the procedures of answering investor requests and obtaining the required approvals for the investor and the project.

Third: Establishing one window at the National Commission for investment and the Regions and Governorates Commissions, which includes authorized representatives from the ministries, and members nominated by the Councils of the regions and governorates as the case and the concerned authorities to undertake issuing licenses and obtain the approvals of other authorities in accordance with the law.

Fourth: Providing advice, information, and data to investors and issuing special manuals in this regard.

Fifth: Setting forth and implementing programs to promote investment in different areas of Iraq in order to attract investors.

Sixth: Facilitating the allocation of the needed lands and renting them out for establishing projects for a sum to be determined by the Commission in coordination with the concerned authorities.

Seventh: Establishing secure and free investment areas with the agreement of the Council of Ministers.

Eighth: Encouraging Iraqi investors through providing them with easy loans and financial facilities in coordination with the Ministry of Finance and with the assistance of Banking Institutions, provided that the investor obtaining the loan shall employ a number of unemployed Iraqis proportional with the volume of the loan.

Ninth: Any other tasks related to its work and assigned by the Council of Ministers.

Chapter Three

Privileges and guarantees

Article 10:

The Investor irrespective of his /her nationality shall enjoy all privileges, facilitations and guarantees and shall be subject to the obligations stated in this law. The Iraqi and foreign investor shall have the right for the purposes of housing projects, the use of the land for a sum to be determined between him and the land owner without land speculation according to conditions set forth by the National Commission of investment and the approval of the Council of Ministers. The Commission shall facilitate the allocation of the required lands for the housing projects. The housing units shall be allocated for ownership by the Iraqis after the completion of the project.

Article 11:

The investor shall enjoy the following benefits:-

First: the investor shall have the right to take out the capital he brought into Iraq and its proceeds in accordance with the provision of this law and pursuant to the instructions of the Central Bank of Iraq in an exchangeable currency after paying all his taxes and debts to the Iraqi Government and all other authorities.

Second: The foreign investor shall have the right to :

- A. Exchange shares and bonds listed in the Iraqi Stock Exchange
- B. Form investment portfolios in shares and bonds

Third: Renting or leasing land needed for the project for the term of the investment project, provided that it does not exceed 50 years renewable with the agreement of the Commission, and provided that the nature of the project and its benefit for the national economy is taken into consideration when determining the period.

Fourth: Insuring the investment project with any foreign or national insurance company it deems suitable.

Fifth: Opening accounts in Iraqi or foreign currency or both at a bank inside or outside Iraq for the licensed project.

Article 12:

This law shall guarantee the following for the investor:-

First: The right to employ and use non- Iraqi workers in case it is not possible to employ an Iraqi with the required qualifications and capable of performing the same task in accordance with guidelines issued by the Commission.

Second: Granting the foreign investor and non –Iraqis working in the investment projects the right for residence in Iraq and facilitate inter and departure from Iraq.

Third: Non- seizure or nationalization of the investment project covered by the provisions of this law in whole or in part, except for projects on which a final judicial judgment was issued.

Fourth: Non Iraq technicians and administration employees working in any project shall have the right to transfer their salaries and compensations outside Iraq in accordance with the law after paying their dues and debts to the Iraqi government and all other entities.

Article 13:

Any amendment to this Law shall not have any retroactive affect regarding the guarantees, exemptions, and rights recognized by this Law.

Chapter four

Investor Obligations

Article 14:

The Investor shall observe the following:-

First: To notify the National Commission for Investment , the Region or Governorate Commission in writing immediately after the installation and equipping of the fixed assets for the purposes of the project and the date of the beginning of commercial activity.

Second: To keep proper records audited by a certified accountant in Iraq in accordance with the law.

Third: To provide an economic and technical feasibility study for the project and any information, data or documents required by the Commission or other competent authorities regarding the budget of the project and the progress made in its execution.

Fourth: To keep records of the projects duty- free imported materials in accordance with the provisions of this Law and specifying the depreciation periods of these materials.

Fifth: To protect the safety of the environment and to adhere to the valid quality control norms in Iraq and International regulations in this field also adhere to laws connected to security and health and to public order and Iraqi social ethics.

Sixth: To adhere to the valid Iraqi laws regarding salaries, vacations, work hours, work conditions and others as a minimum.

Seventh: Commitment to the correspondence of the work progress schedule submitted by the investor with reality provided that the time difference shall not exceed six months, the National Commission for Investment shall set forth punitive conditions in case of exceeding the six –month period and the Commission shall have the right to withdraw the license.

Eighth: To train and rehabilitate its Iraqi employees as well as raising their efficiency, skill and capabilities. Priority in employment and recruitment shall be given to the Iraqis.

Chapter Five

Exemptions

Article 15:

First: The project that has obtained an investment license from the Commission shall enjoy exemption from taxes and duties for a period of (10) ten years as of the date of commencing commercial operations in accordance with the areas of development defined by the Council of Ministers at the suggestion of the National Commission for Investment based on the degree of economic development and the nature of the investment project.

Second: To Council of Ministers shall have the right to propose draft laws to extend or grant exemptions in addition to the exemptions stipulated in paragraph (First) of this Article, or provide incentives, guarantees or other benefits to any project or sector or region and for the periods and percentages it deems appropriate in accordance with the nature of the activity, its geographical location and its contribution to manpower employment and its effect on driving the economic development, for considerations of national interest.

Third: The National Commission for Investment has the right to increase the years of tax and duties exemption in a way directly proportional to the increase in the Iraqi Investor share in the project to reach fifteen years if the Iraqi Investor share in the project was more than 50% .

Article 16:

In case the project is moved from one development area to another during the exemption period, the project – for the purpose of exemption stipulated in(First) of Article 15- shall be treated during the remaining term the treatment of the project in the development areas it is moving to, provided that the Commission is informed of such move.

Article 17:

The project that obtains an investment license shall also enjoy the following:-

First: Assets imported for the purposes of the investment project shall be exempted from duties provided that their entry to Iraq is made within(3) three years from the date of granting the investment license.

Second: The imported assets required for the expansion, development or modernization of the project shall be exempted from duties in case they led to an increase in the designed capacity, provided they are brought in within three years from the date of notifying the Commission of the expansion or development. Expansion, for the purposes of this law, shall mean adding fixed capital assets aimed at increasing the designed capacity of the project in commodities or services or materials by a percentage exceeding (15%)fifteen percent. Development, for the purposes of this law, shall mean replacing project machines with more developed ones, totally or partially or making a development on the standing devices and equipments of the project by adding new machines and devices or parts thereof with the aim of raising the productive efficiency or improving and developing the quality of the products and services.

Third: Spare parts imported for the purposes of the project shall be exempted from duties if the value of these parts does not exceeded(20%) twenty percent of the fixed assets value, provided that they are not used for any other purpose.

Fourth: Hotels, tourist institutions, hospitals, health institutions, rehabilitation centers and educational and scientific organizations project shall be granted additional exemptions from duties and taxes on their imports of furniture, furnishings and requisites for renewing and updating purposes at least once every four years, provided that these items are brought into Iraq or used in the project within (3) three years from the date of the approval decision of the Commission on the import lists and their quantities, and provided that these items are not used for purposes other than the imported purposes.

Article 18:

In case it is found that the project assets totally or partially exempted from customs and duties, are sold, in contrary to the provisions at this law or used not for the project, or used not for the declared purpose then the investor must pay the taxes and fines incurred pursuant to the law.

Chapter Six

Procedures for Granting investment and project Establishment License

Article 19:

First: The investor shall obtain the license in addition to obtaining the rest of the licenses for the purpose of enjoying the privileges and exemptions provided by the Commission.

Second: To Commission shall grant the license for investment or project establishment based on a request submitted by the investor according to conditions facilitated and prepared by the Commission.

The request submitted by the investor shall include the following:-

- A- Filling a request form prepared by the Commission.
- B- Financial competency from an accredited bank.
- C- Projects performed by the investor inside or outside Iraq.
- D- Details of the project intended to invest in and its economic feasibility.
- E- A timetable for completing the project.

Article 20:

First: The Commission must issue the establishing license through establishing one window in the region or the governorate not organized in a region that includes authorized representatives of the ministries and relevant bodies. The Commission shall grant project establishment license and obtain approvals from the entities in accordance with the law.

Second: To Commission must help the investor to obtain licenses by approaching the competent authorities and exploring the opinions of the entities concerning the issuance of the establishment license. These entities must issue the decision to reject, approve or request amendment within 15 days from the date of being notified. The failure to reply from the entity from which the opinion is solicited shall be deemed as an approval and in case of a rejection there must be cause for it.

Third: In case of disagreement between the National Commission for Investment decision and the other entity related to granting establishment license other than the region commission the dispute shall be raised to prime Minister for settlement.

Fourth: In case the request for registration is rejected, the applicant may file a complaint to the Chairman of the region or the governorate Commission concerned within(15) fifteen days after receiving notification of the rejection decision. The Chairman of the Commission concerned shall take a decision concerning the complaint in question within a period of seven days. The petitioner may appeal the decision of the Chairman of the Commission concerned rejecting his complaint to the authority to which the Commission concerned is connected to within 15 days from the date the complaints rejection and its decision is deemed final.

Chapter Seven

General Provisions

Article 21:

The project capital subject to the provisions of this law shall be made up of the following:-

First: Cash transferred to Iraq through banks and financial companies or any other legal means with the aim of investing it for the purposes of this law.

Second: The in – kind assets and incorporeal rights imported to Iraq or purchased from the local markets by the cash transferred into Iraq:-

A- In- kind assets related to the project.

B- The machinery, tools, equipment, building , construction, transportation means, furniture and offices appliances required for establishing the project.

C- The incorporeal rights that include patents, registered trade marks, technical know- how, engineering services, administrative and marketing services and the similar.

Third: Profits, proceeds and reserves resulting from the capital invested in Iraq in the project if the capital of such a project was increased or was invested in another project covered by the provisions of this law.

Article 22:

The foreign investor shall enjoy additional privileges in accordance with international agreements signed between Iraq and his country or multilateral international agreements which Iraq has joined.

Article 23:

In case the property of the project during the exemption term is transferred to another investor the project shall continue to enjoy granted exemption facilities and guarantees until the end of that period provided that the new investor continue to work on the project in the same specialization or in another, with the approval of the Commission. The new investor must take the place of the former investor in the rights and obligations consequent to the provisions of this law.

Article 24:

First: The investor, with the approval of the Commission, may sell exempted fixed assets or relinquish it to another investor benefiting from the provisions of this law, provided that he uses them in his project.

Second: The investor, after informing the Commission, may sell the exempted fixed assets to any person or other project not subject to the provisions of this law after paying the outstanding duties and taxes.

Third: The investor, with the approval of the Committee, may re-export the exempted fixed assets.

Article 25:

In the event two or more companies or enterprises merge, the new company or entity resulting from the merger must set up separate accounts for each project before the merger in order to register and apply exemptions and facilitations stipulated in this law during the remaining period of the exemption.

Article 26:

Any project approved in accordance with the provisions of the previous applicable laws shall continue to benefit from all exemptions granted to it pursuant to that law and until the expiration of the exemption period and under the same terms.

Article 27:

Disputes arising between parties who are subject to the provisions of this law shall be subject to the Iraqi law unless otherwise agreed, save to the cases that are subject to the provisions of the Iraq law exclusively or the jurisdiction of Iraqi courts.

- 1- Disputes arising from the labor contract shall exclusively be subject to the provisions of the Iraqi law and the jurisdiction of the Iraq courts. Non –Iraqi labor shall be exempted if the work contract stipulated otherwise.
- 2- If parties to a dispute are non – Iraqis and in disputes not arising from a crime, the opponents may agree on the law to be applied, the competent court or any other agreement to resolve their dispute.
- 3- In case of dispute between partners or between the owner of a project subjected to the provisions of this law, and others that result stoppage of work for a period of more than three months, the Commission may withdraw the license and ask the owners of the project to settle the dispute within a period not exceeding three months. If such period elapsed without settling the dispute between the partners or between the owner of the project and others, the Commission may take legal measures to liquidate the project and notify the owner of the project or one of the partners of such action. The liquidation money shall be deposited in one of the banks after paying the dues of the State or any other dues after final judgment of their entitlement is rendered.
- 4- If the parties to a dispute are subject to the provisions of this law, they may, at the time of signing the agreement, agree on a mechanism to resolve disputes including arbitration pursuant to the Iraqi law or any other internationally recognized entity.

5- Disputes arising between the Commission or any governmental entity and any of those subject to the provisions of this law on matters not related to violations of one of the provisions of this law shall be subject to Iraqi law and courts on civil matters. As for commercial disputes, parties may resort to arbitration provided that such an arrangement is stipulated in the contract organizing the relationship between parties.

Article 28:

In case the investor violates any of the provisions of this law, the Commission shall have the right to warn the investor in writing to remove the violation within a specific period.

In case the investor does not remove the violation within the specified period, the Commission shall summon the investor or who represent him to state his position and grant him other respite to settle the issue. Upon repeating or not removing the violation, the Commission shall have the right to withdraw the investor's license it issued and order stoppage of work on the project and retain the state's right to deny the investor the granted exemptions and privileges from the date of the violation and allow others to retain their rights to demand compensation for the damage caused by this violation, without breaching any punishments or other compensations stipulated in the applicable laws.

Article 29:

All fields of investments shall be subject to the provisions of this law except:-

First: Investment in Oil and Gas extraction and production.

Second: Investment in banks and insurance companies sectors.

Article 30:

The Council of Ministers may.

First: Issue regulations to facilitate the implementation of the provisions of this law.

Second: Issue bylaws defining the Commission's formations, divisions tasks, process of its work, its authorities, financial affairs, employee affairs and any other matters.

Article 31:

The Committee may issue instructions to facilitate the implementation of regulations issued by the Council of Ministers pursuant to the provisions of this law.

Article 32:

The Provisions of this law shall be applied to the existing and operating projects of the mixed and private sectors which have commenced before the issuance of this law and upon a request from its management and the approval of the Commission with no retroactive effect.

Article 33:

No text shall be valid which contradicts the provisions of this law.

Article 34:

The (dissolved) CPA Order No. 39 of 2003 shall be revoked.

Article 35:

The Arab Investment law No(62) of 2002 issued by the dissolved Revolution Command Council shall be annulled.

Article 36:

This law shall enter into force from the date of its publication in the Official Gazette.

Justifying Reasons

For the purpose of driving the process of economic and social development and bringing technical and scientific experience and developing human resources, and for creating work opportunities for the Iraqis by encouraging investments and supporting the process of establishing investment projects in Iraq and their expansion and development at various economic levels and by granting privileges and exemptions for these projects, this law is legislated.