

ALLIANCE

## ALLIANCE SUGAR MILLS (PVT) LIMITED

ASML/HO/2014/176

May 26, 2014

The Registrar  
National Electric Power Regulatory Authority  
2nd FLOOR, OPF Building  
G-5/2, Islamabad

**Subject: Application for a new Generation License of M/s Alliance Sugar Mills (Private) Limited (ASML)**

Dear Sir,

I, Mr. Adnan Zubair Janjua, Chief Financial Officer being the authorized representative of ASML by virtue of Board Resolution dated 08 May, 2014, hereby apply to National Electric Power Regulatory Authority for a grant of Generation license to the M/S ALLIANCE SUGAR MILLS (PRIVATE) LIMITED pursuant to section (3) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

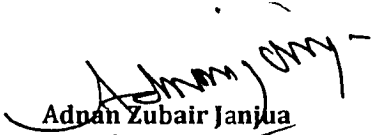
I certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provision of the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999, and undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and belief.

A Bank Draft numbered 0016185 dated 26 May 2014 in the sum of Rupees PKR 269,456/- (Pak Rupees Two Hundred Sixty Nine Thousand Four Hundred Fifty Sixty Only), being the non-refundable license application fee calculated in accordance with the schedule II to the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999, is also attached herewith.

We shall be pleased to provide any further information you may require.

We request an early action in this matter.

Thanking You.  
For Alliance Sugar Mills (Private) Limited

  
Adnan Zubair Janjua  
(Chief Financial Officer)



**ALLIANCE**

**ALLIANCE SUGAR MILLS (PVT) LIMITED**

**CERTIFIED TRUE COPY OF THE RESOLUTION PASSED IN THE MEETING OF BOARD OF DIRECTORS HELD ON 08<sup>th</sup> MAY, 2014 AT 11:30 A.M. AT ITS REGISTERED OFFICE 3-B NISAR ROAD NISAR COLONY, LAHORE CANTT, LAHORE.**

**"RESOLVED THAT"** the company ("Alliance Sugar Mills (Private) Limited") intends to install two additional high pressure steam turbines having capacity of 15 MW each.

**"FURTHER RESOLVED THAT"** Mr. Adnan Zubair Janjua (Chief Financial Officer - CFO) of the company, be and is hereby authorized and empowered on behalf of the company to deal with the National Electric Power Regulatory Authority ("NEPRA") and Sukkur Electric Power Company ("SEPCO") in connection with issuance of license, tariff and all related matters to sign and execute all the documents, and do and take all necessary acts, which may be required by NEPRA and SEPCO from time to time and to do all other incidental and ancillary acts, things and deeds.

**"FURTHER RESOLVED THAT"** A copy of this resolution be provided to the NEPRA and SEPCO with the seal/stamp duly affixed thereon for their information and record.

  
**UMER FAROOQ**  
**(Company Secretary)**



**ALLIANCE**

## **ALLIANCE SUGAR MILLS (PVT) LIMITED**

### **CHANGE OF ADDRESS INTIMATION**

This is to inform that Alliance Sugar Mills (Private) Limited has changed its registered office with effect from May 08, 2014:-

The old office address was:-

50-A/3, Tufail Road Lahore Cantt.

The NEW OFFICE ADDRESS is :-

3-B, Nisar Road, Nisar Colony, Lahore Cantt.

The Requisite Form-21 was filed with Registrar of companies(Acknowledgment attached) , Securities & Exchange Commission of Pakistan, Lahore office and certified copy will be available in due course of time.

For Alliance Sugar Mills (Private) Limited

  
**UMER FAROOQ**  
**(Company Secretary)**





SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN

COMPANY REGISTRATION OFFICE  
LAHORE

CERTIFICATE OF INCORPORATION

[Under section 32 of the Companies Ordinance, 1984 (XLVII of 1984)]

Corporate Universal Identification No. **0076093**

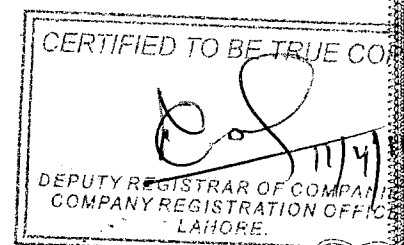
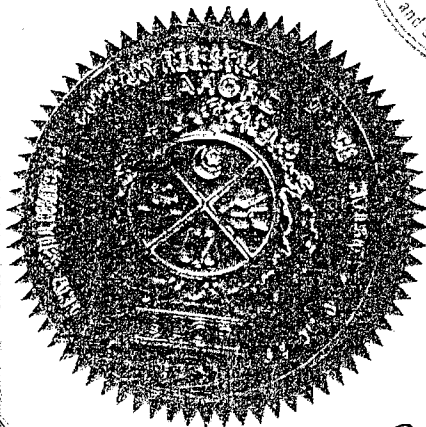
I hereby certify that **ALLIANCE SUGAR MILLS**  
**(PRIVATE) LIMITED** is this day incorporated under the Companies  
Ordinance, 1984 (XLVII of 1984) and that the company is Limited by Shares.

Given under my hand at Lahore this Thirty First day of May, Two  
Thousand and Eleven.

Fee Rs. 14,000/-



*R. Ahmad*  
**(ZAHUR AHMAD)**  
Joint Registrar



*IRL 17174 Q 31-5-11.*

Certified True Copy



THE COMPANIES ORDINANCE, 1984  
PRIVATE COMPANY LIMITED BY SHARES  
MEMORANDUM OF ASSOCIATION  
OF  
ALLIANCE SUGAR MILLS (PRIVATE) LIMITED

**NAME**

- I. The name of company is **ALLIANCE SUGAR MILLS (PRIVATE) LIMITED.**

**REGISTERED OFFICE**

- II. The registered office of the company shall be situated in the province of the Punjab.

**OBJECTS**

- III. The objects for which the company is established are to undertake any or all of the following businesses in and outside Pakistan:

1. To establish and carry on in Pakistan or elsewhere all or any of the business of sugar manufacturers and dealers in all their respective branches; to manufacture, refine, produce, prepare, import, export, purchase, sell and generally to deal in sugar, sugar-beet, sugar-cane, gur, molasses, syrups, sugar candy and all other products or by-products thereof and other vegetable, fruit, food, corn or any other material from which sugar and allied products could be manufactured; to acquire, construct and operate sugar mills, distillery, confectionery mills and factories for other food products generally and to transact other such works and supporting facilities necessary or incidental to these objects or any of them.

2. To buy, sell, grow, plants, cultivate or otherwise acquire sugar-cane, sugar-beet, fruits, vegetables and cereals of any variety or varieties on the company's own lands or on lands of others, on such terms and conditions as the company may deem fit from time to time and to advance moneys and loans to growers, farmers, landowners and contractors and provide them with seeds, manure, tools, machinery and other facilities, on such terms and conditions as the company may deem fit and to consume all or any such grown, owned or acquired sugar-cane, sugar-beet, fruits, vegetable or corn, in company's own undertakings or to dispose of, supply export or sell all or any of these commodities to any dealers, distributors, manufacturers, exporters and others on such terms and conditions as the company may deem proper.

3. To develop, extract and produce seeds, various hybrid stains and patenting them.

4. To entail agri research and development activities and collaborations with research institutions and foreign partners for the said purpose and to generally carry out all activities and businesses as may be needed or incidental for the manufacture of sugar and related products.

Controlled true Copy

1.1



5. To produce all type of distillery products including spirits, rectified spirits, syrups, ethanol, and all other products arising out of the manufacturing process of sugar or which is germane to the said object, for store, sale, distribution, export, import for industrial, human or commercial use or any other purpose.

6. To carry on the business as manufacturers, producers, processors, importers, exporters, buyers, sellers, stockiest, agents, contractors, collaborators, exchangers, distributors or otherwise to deal in all kinds and classes of board including duplex boards, triplex boards, hard boards, ply wood boards, paste boards, art boards, ivory card boards, straw boards, fiber boards, corrugated boards, glazed boards, size boards, coloured boards, laminated boards, pressed boards, messonite boards.

7. To deal in all type of bagasse, timber wood and wood waste, process chemicals, any other fibrous raw material to surface treat the boards, to print and lacquer, to veneer, to make any type of furniture and door etc and in connection therewith to acquire, construct, install manufacturing facilities for any of the process chemicals, glue and resins or for utilization of any of the by products from the above manufacture.

8. To carry on the business of generation of power for captive consumption and supply, sale or export of electric power, whether by the use of bio-mass, bagasse, any other feed stock or from any other substances and to establish, own, manage and maintain power plants, power generators, electricity generating works, factories and other works and conveniences in connection therewith and to generate, use, sell, supply and distribute electricity arising out of the carrying on of the objects specified hereinafter.

9. To carry on the business of power generation and in relation thereto, to generate, accumulate, transmit, distribute and sell electric power anywhere in Pakistan using conventional and non-conventional fuel/energy resources (including bagasse, natural gas, oil, coal, solar, hydel, wind, bio-mass or any other energy resources whether indigenous or imported), to the public sector, including Pakistan Electric Power Company (Private) Limited, National Transmission and Dispatch Company Limited, Government and Government bodies and the private sector subject to any permission required under the law.

10. To design, finance, insure, build, establish, own, operate, takeover, maintain, manage, power generation units, sub-stations, work shops, repair shops, wires, cables, transmission lines, accumulators for the purpose of conservation, distribution and supply of electricity to private and public sector companies/organizations for industrial, commercial, domestic, public and other purposes and also to provide regular services for repairing and maintenance of all distribution and supply lines subject to permission required under any law

11. To install, operate, use, inspect, maintain, repair, replace, and remove cables, lines, ducts, transformers, switchgear (remotely controlled and otherwise and including time switches), fuses, circuit breakers, electricity services equipment, meters and other devices for measuring or controlling the quantity or quality of electricity supplied, prepayment and debt payment devices, items provided to afford access to, support, encase, insulate and protect from damage or tampering, the above-mentioned gadgets, or to protect people and property from injury or damage, or to comply with any legal obligation.

12. To buy sell, manufacture, repair, alter, improve, exchange or let out, import, export and deal in all works legally permitted, plant, machinery, engines, tanks, cylinders, valves, regulators, testing equipment, tools, utensils, appliances, cookers, stoves, heater, apparatus, materials, chemicals, natural gas, liquefied petroleum gas, fuel oil, coal, lubricants, articles and things and to manufacture, experiment with, render marketable and deal in all products legally permitted, incidental to or obtained in the business carried on by the Company.
13. To apply for and obtain necessary consents, permissions and licenses from any government, provincial, local, foreign, multilateral or other authorities or entities for enabling the Company to carry any of its objects into affect or for extending any of the powers of the Company or for effecting any modification of the constitution of the Company or for any other purpose which may seem expedient, any government or authorities, foreign, federal, provincial, municipal, local or otherwise, public or quasi-public bodies, or with any other persons, in any place where the Company may have interests that may seem conducive to the objects of the Company and to obtain from any such government, authorities or persons any rights, privileges and concessions which the Company may think fit to obtain, and to carry out, exercise and comply therewith.
14. To ascertain the bulk supply tariff rates that will secure recovery of operating and other costs and a reasonable return on investment and to petition the appropriate government body for the adoption of or increase in its schedule of bulk supply tariff rates.
15. To carry on the business of manufacturers of and dealers in all kinds and classes of pulp, including sugar-cane, bagasse pulp, sulphite wood pulp, mechanical pulp, and soda pulp and paper of all kinds, including transparent, writing, printing, glazed, absorbent, news-printing, wrapping, tissue, blotting, filter, bank and bond, brown, buff or coloured, clothlined, azure-laid, creamlaid grease or waterproof, hand-made parchment, drawing, kraft, carbon, envelope, cardboard, box board, veneer board, straw board, mill board, duplex and triplex boards, wall and ceiling papers and all kinds of articles in the manufacture of which pulp, paper or board is used and materials used in the manufacture or treatment of pulp and paper.
16. To manufacture bio-fertilizers and bio-products of all types and descriptions which can be advantageously derived from the by-products derived from the manufacture of sugar and to buy, sell, import, export or otherwise deal in the same.
17. To carry on the business as traders, merchants, wholesalers, retailers, liasioners, stockist, distributors, importers, exporters, intermediaries, middle men, suppliers, indenters, commission agents, buying agents, selling agents, franchiser, or otherwise to exchange, load, unload, handle, deal in all types of machinery, equipment, components, goods, articles, things, products, commodities, consumables, accessories, spare parts, ingredients, systems, substances, instruments, chemicals, devices, fittings, tools, dies, jigs, compounds, raw materials, by-products, semi-finished products, materials, wastes, residues, derivatives, appliances, stores, preparations, mixtures, vehicles and other items used in any industry, commerce, transport, public welfare needs, defense, aviation, agriculture, construction, power, transmission, pollution or in any other field and to do all such incidental acts and things necessary for the attainment of the foregoing objects.
18. To carry on agency business (except managing agency) and to acquire and hold selling agencies and to act as selling agents, commission agents, manufacturers' representatives and distributing agents of and for the distribution of all kinds of merchandise, goods, commodities, products, materials, substances, articles and things whether finished, semi-finished, raw, under process, refined, treated or otherwise pertaining to trade and commerce and for that purpose to remunerate them and to open and maintain depots and branches.

19. To receive goods on consignment, from any company, firm, association of persons, body, whether incorporated or not, individuals, government, semi-government or any local authority and sell the same as agents or on principal to principal basis.
20. To carry on the business of sales representatives either on commission or on profit sharing basis of all kinds of goods and materials.
21. To carry on the business of general order suppliers including government, semi-government agencies, armed forces, army, military or defense and commission agents, indenters, traders and as general merchants, wholesalers, retailers, dealers, distributors, stockist agents, sub-agents in any goods or products or within the scope of the object of the company and subject to any permission required under the law.
22. To establish trading house and for the purpose to act as buyer, seller, importer, exporter, broker, representative, marketman, distributor, stockist or otherwise to deal in all sorts of goods, articles, items, commodities, merchandise and products.
23. To act as representatives, brokers, trustees for any person, firm or company and to undertake and perform sub-contracts, and also act in the business of the company through or by means of agents, sub-contractors and to do all or any of the things mentioned herein in any part of the world and either alone or in collaboration with others and by or through agents/sub-contractors or otherwise.
24. To arrange, establish, encourage, promote, manage and organize marketing operations for sale of the products and by-products and for the purpose either to establish its own shops, retail counters, franchises, depots, showrooms, agencies, or marketing organizations or to appoint agents, distributors, stockist, representatives, wholesales, retailers or dealers on such terms and conditions as the company may deem fit from time to time.
25. To apply for tender, offer, accept, purchase or otherwise acquire any contracts and concessions for or in relation to the projection, execution, carrying out, improvements, management, administrations or control of works and conveniences and undertake, execute, carry out, dispose of or otherwise turn to account the same.
26. To establish distribution centers, branches, franchises, depots, offices, showrooms, parlours, retail counters, service centers, and other networks for the purpose of the business of the company and to run, maintain or discontinue such establishments as may be necessary from time to time.
27. To establish warehouses and to carry on the business of warehouse-men, stores, custodian, and to provide facilities for storage of commodities, articles, things, preparation of all kinds and description whatsoever, storage room, bins, godowns, cold storage, and clearing, forwarding, transportation and distribution of merchandise of all kinds.
28. To make know or give publicity to the business and productions of the company by means of advertisement in the press, radio, television and cable television or any other electronic media, pamphlets, handbills, circulars, advertisement posters, cinema, slides, electronic media/computer device or publication of books or by donations or in any other suitable mode.



29. To purchase, take on lease or in exchange, hire, apply for or otherwise acquire and hold for any interest, any rights, privileges, lands, building, easements, trade marks, patents, patent right, copyrights, licenses, machinery, plants, stock-in-trade, and any movable and immovable property of any kind necessary or convenient for the purposes of or in connection with the company's business or any branch or department thereof and to use, exercise, develop, grant licenses in respect of or otherwise turn to account any property, rights, and information so acquired, subject to any permission required under the law.

30. To enter into arrangements with the government or authority (supreme, municipal, local or otherwise) or any corporation, company, or persons that may seem conducive to the company's objects or any of them and to obtain from any such government, authority, corporation, company or person any charters, contracts, rights, privileges and commission which the company may think desirable and to carry on exercise and comply with any such charters, contracts, decrees, rights, privileges and concessions.

31. To acquire by concession, grant, purchase, barter, license either absolutely or conditionally and either solely or jointly with others any lands, buildings, machinery, plants, equipment, privileges, rights, licenses, trade marks, patents, and other movable and immovable property of any description which the company may deem necessary or which may seem to the company capable of being turned to account, subject to any permission as required under the law.

32. To establish, promote or assist in establishing or promoting and subscribe to or become a member of any other company, association or club whose objects are similar or in part similar to the objects of this company or the establishment or promotion of which may be beneficial to the company, as permissible under the law.

33. To guarantee the performance of the contracts and obligations of the company in relation to the payment of any loan, debenture, stock, obligations or securities by or in favour of the company and to guarantee the payment or return on such investments or on any share of the company and to enter into any guarantee, contract of indemnity or suretyship and, in particular to guarantee, support or secure guarantee from banks, financial institutions etc with or without consideration, whether by personal obligation or by mortgaging or charging all or any part of the undertaking, property and assets (present and future), and unsubscribed capital of the company or by both such methods or in any other manner, the performance of any contract, obligation or commitment of, and the repayment or payment of the principal amounts of and any premiums, interest, dividends, and other moneys payable on or in respect of any securities or liabilities of, any person or company.

34. To acquire, improve, manage, develop, exchange, sell, mortgage, franchise, dispose off or deal with all or any part of the property, rights, patents and concessions of the company.

35. To arrange for local currency and foreign currency loans from scheduled banks, industrial banks and financial institutions for the purposes of construction or purchase of office buildings and for the purposes of working capital or for any other purpose which the directors deem fit.

36. To pay all costs, charges and expenses incidental to the formation and registration of the company.

37. To sell in any manner, deal with or dispose of the undertaking or property of the company or part thereof for such consideration as the company may think fit.

38. To insure the property, assets, and employees of the company in any manner deemed fit by the company, and to create any reserve fund, sinking fund, insurance fund or any other special fund whether for depreciation or for repairing, insuring, improving, extending or maintaining any of the properties of the company or for any other purpose conducive to the interests of the company, but not to act as an insurance company.
39. To carry out joint venture agreements with other companies within the scope of the objects of the company.
40. To apply, approach, purchase, tender, auction, hold, protect, prolong, work, use or otherwise to acquire, renew or dispose of in any part of the world any patents, copyrights, trade secrets, secret processes, information, know-how, formulas, inventions, trade marks, monos, designs, licenses, concessions, franchise and the like, conferring any absolute, exclusive, non-exclusive, limited, temporary or permanent right to use or work the same or any secret or other information as to any invention which may seem capable of being used for any of the purposes of the company or the acquisition of which may seem beneficial to the company and to use, exercise, develop or grant licenses in respect of, or otherwise turn to account, the property, rights, or information so acquired, and to expend money in experimenting upon, testing or improving or seeking to improve any such patents, inventions, rights, designs or information as aforesaid which the company may acquire or propose to acquire.
41. To open, operate and close bank accounts of any type with commercial banks, scheduled banks, financial institutions, post office and government approved savings schemes and to draw, make, accept, endorse, discount, execute and issue cheques, promissory notes, bills of exchange, bills of lading, warrants, deposit notes, debentures, letters of credit and other negotiable or transferable instruments and securities.
42. To borrow or raise money by means of local and foreign currency loans from scheduled banks, industrial banks, financial institutions, specialized institutions or non-banking finance companies etc with or without security, mortgage, charge or lien upon all or any of the assets of the company both present and future.
43. To pay for any property or rights acquired by the company either in cash or fully paid shares or by the issue of securities or partly in one mode and partly in another and generally on such terms as may be determined.
44. To aid and support any person, association, body or movement, whose object is to provide solution, or settlement, or to prevent any disputes, or labour problems connected with the company or with an industry, trade or business as a whole.
45. To arrange money by issue of debentures, debenture stock, perpetual or otherwise convertible into shares and to mortgage, or charge the whole or any part of the property or assets of the Company, present or future, by special assignment or to transfer or convey the same absolutely or in trust as may seem expedient and to, purchase, redeem or payoff any such securities.
46. To arrange, manage, promote, motivate, subsidies and organize training programmes for the employees, trainees and apprentices at all levels as may be conducive to the interest of the company and for the purpose to establish training centers, to organize and hold seminars, conferences, workshops, study meetings, group discussions, written tests, lectures, practical training, demonstrations and other devices and for the purpose to incur recurring and non-recurring expenses as may be necessary from time to time.

47. To secure, promote, organize, manage, or enter into collaboration agreement in all its branches with any person, firm, company, corporation, authority, body or other entity to acquire technical know-how, buy back arrangement, procurement of any nature of goods, financial assistance, training and development or for any other purpose whatsoever and subject to the law in force pay such commission, fees, royalty or other charges as may be agreed from time to time.
48. To incorporate, float, promote, constitute or form any subsidiary company or companies or to make any existing company as the subsidiary of the company for the purpose of carrying on any business or branch of a business which the company is authorized to carry on or not, and to enter into any arrangement with such subsidiary company for sharing profits and losses of any business or branch of business as carried on, or to make any other arrangement which may seem conducive with reference to any business so carried on, including power at any time to close any such branch or business.
49. To establish and maintain or procure the establishment and maintenance of any contributory or non-contributory funds for the benefit of, and give or procure the giving of donations, gratuities, pensions, allowances or emoluments to such persons who are or were at any time in the employment or service of the company or of any company which is a holding company, management company or a subsidiary of the company or is allied to or associated with the company or with any such subsidiary or affiliate company, or who are or were at any time directors or officers of the company or of any such other company as aforesaid, and the wives, widows, families and qualified dependents of any such persons, and also to establish, subsidize and subscribe to institutions, associations, clubs or funds calculated to be for the benefit of or to advance the interests and well-being of the company or of any such other company as aforesaid, and make payments to or towards the insurance of any such person as aforesaid and do any of the matters aforesaid, either alone or in conjunction with any such other company as aforesaid.
50. To undertake, carry out, promote, sponsor, discharge, fulfill or assist all types of activities considered to be the social or moral responsibilities of the company to community, class of peoples, section of public or to public at large including activities for promotion of education, national welfare, economic growth, increase in standard of living, uplifting moral public, etc. by organizing seminars and lectures, publishing books and literature, distributing awards and scholarships, providing subsidies and donations to such persons or bodies on such terms and conditions as the board of directors of the company may think fit from time to time.
51. To acquire and hold of investments in shares, modaraba certificates, term finance certificates, musharika certificates, unit trust certificates, mutual fund certificates, debentures, debenture stock, bonds, obligations and securities issued or guaranteed by any company, government, commission, public body or authority, supreme, municipal, local or otherwise and to dispose of investments as and when required or at the time of winding up of the company subject to any permission required by the law.
52. To accept shares, modaraba certificates, term finance certificates, musharika certificates, bonds, debentures or other securities of any other company in payment or part payment of any services rendered or for any sale made to or debt owing from any such company, subject to any permission required by the law.
53. To acquire, take over and undertake the whole or any part of business as a going concern along with all assets, liabilities, licences, quotas, rights, entitlements etc. from any person, firm or company; to enter into partnership or into any arrangements for sharing profits, union of interests,

co operations, joint ventures, reciprocal concessions or otherwise with any person or company carrying on or engaged in, or about to carry on or engage in, any business or transaction which this company is authorized to carry on or engage in or any business or transaction capable of being conducted so as to directly or indirectly benefit this company and to guarantee the contracts of or otherwise assist any such person or company and to take or otherwise acquire shares and securities of any such company and to sell, hold, re-issue, with or without guarantee or otherwise deal with the same.

54. To procure the company to be registered or recognized in any part of the world and to do all or any of the above things in any part of the world, either as principal, agent, trustee, contractor or otherwise, alone or in collaboration with another, and either by or through agents, trustees, sub-contractors, subsidiaries or otherwise.

55. To give any director, official, servant or employee of the company commission in the profits of the company's business or any branch thereof and for the purpose to enter into any agreement or scheme of arrangement as the company may deem fit and to procure any servants or employees of the company to be insured against the risk of accident in the course of their employment by the company.

56. To give charity and donations to any person, charitable institutions and other organizations as the directors of the company deemed fit.

57. To amalgamate, absorb or merge with any company or companies, foreign company, whether or not having similar objects as of this company and to do all such incidental act, deeds and things as may be necessary to give effect to amalgamation, absorption or merger.

58. To advance money to staff members, customers and others having dealing with the company with or without security upon such terms as may deem expedient.

59. To sell, mortgage or dispose of the undertaking of the company or any part thereof in such manner and for such consideration as the company may think fit.

60. To distribute any of the company's property among the members in specie or in any manner whatsoever at the event of winding up of the company.

61. To do all such other things as are incidental or conducive in the opinion of the board of directors, to the attainment of the above sole object.

62. To undertake or execute any trust the undertaking of which seem to the company desirable, either gratuitously or otherwise.

63. To apply for and obtain necessary consents, permissions, licenses, from any government, state, local and other authorities for enabling the company to carry on any of its objects into effect as and when required by law.

64. It is hereby undertaken that the company shall not engage in banking business or the business of any investment company, leasing or insurance business or in any unlawful business and that nothing in the object clause shall be constructed to entitle it to engage in any such business.

65. It is further declared that notwithstanding anything stated in any object clause, the company shall obtain such other approval or license from the competent authority, as may be required under any law for the time being in force, to undertake a particular business dealers of aerated water and other drinks.

#### LIABILITY OF MEMBERS

IV. The liability of the members is limited.

#### SHARE CAPITAL

V. The authorized share capital of the company is Rupees 1,000,000,000 (Rupees One Billion only) divided into 100,000,000 (One Hundred Million) shares of Rupees 10 (Rupees Ten) each comprising ordinary shares and preference shares with the power to increase or reduce the capital and to divide the shares in the capital for the time being into several classes in accordance with the provisions of the Companies Ordinance 1984 and rules made there under and to attach thereto respectively such preferential, deferred, qualified or special rights, privileges or conditions as may be determined by or in accordance with the articles of association or the regulations of the company for the time being and to vary, modify, abrogate any such rights, privileges or conditions in such manner as may for the time being be provided by the articles of association or regulations of the company.

We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a Company in pursuance of this Memorandum of Association and we respectively agree to take the number of shares in the capital of the company set opposite our respective names:-

Sr. No.	Name & Surname (Present and former in full)	Father's/Husband's Name in full	Nationality	Occupation	Residential Address	No. of ordinary shares taken by each Subscriber	Signature
1	Mr. Abdul Shakoor Khan Passport # 540231987	Mr. Abdul Haleem Khan	British	Business Executive	50-A, Chalk Farm Road, Camden, London, UK	10	
2	Mr. Muhammad Aslam Gehlanvi NIC # 35202-8147978-7	Mr. Khuda Bakhsh	Pakistani	Business Executive	House No. 11-G-2, Sector G II, Wapda Town, Lahore	10	
3	Mr. Omar Farooq NIC # 35202-7739583-9	Mr. Muhammad Hafeez	Pakistani	Business Executive	House No. 12-B, Street No. 29, Barni Road, Garhe Shaho, Lahore	10	
Dated this		day of			Total Shares Taken	30	

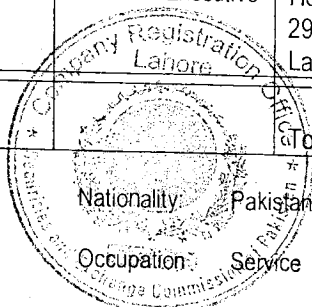
Witness to the above Signatures:

Full Name: Syed Qalander Ali Gilani

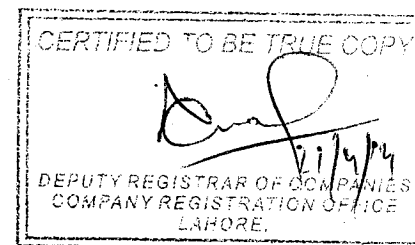
NIC # 35302-7082659-7

Father's/Husband's Full Name: S/O Syed Zulfiqar Ali Gilani

Signature:



Full Address: 10-B, Saint Mary Park, Main Boulevard,  
Gulberg-III, Lahore



THE COMPANIES ORDINANCE, 1984

**ARTICLES OF ASSOCIATION**  
**OF**  
**ALLIANCE SUGAR MILLS**  
**(PRIVATE) LIMITED**

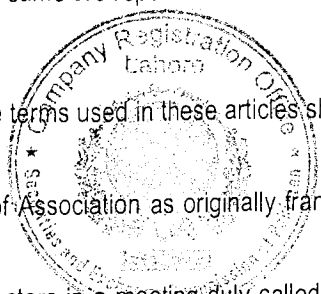
**I. PRELIMINARY**

**1. TABLE "A" Not to Apply**

The regulations in Table 'A' in the First Schedule to the Companies Ordinance, 1984 shall not apply to the company except so far as the same are repeated or contained in these articles.

**2. DEFINITIONS**

Unless the context otherwise requires, the terms used in these articles shall have the meanings set out below:

- 
- (a) **"Articles"** mean these Articles of Association as originally framed or as from time to time altered by special resolution.
  - (b) **"Board"** means the group of directors in a meeting duly called and constituted or, as the case may be, the directors assembled at a board.
  - (c) **"Book and paper"**, "book or paper" or "books of account" mean accounts, deeds, vouchers, writings and documents, maintained on paper or computer network, floppy, diskette, magnetic cartridge tape, CD-Rom or any other computer readable media;
  - (d) **"Company"** means ALLIANCE SUGAR MILLS (PRIVATE) LIMITED
  - (e) **"Commission"** means the Securities and Exchange Commission of Pakistan established under section 3 of the Securities and Exchange Commission of Pakistan Act, 1997.
  - (f) **"Directors"** mean the directors for the time being of the company including alternate directors and, subsequently elected pursuant to Companies Ordinance, 1984 or as the case may be, the directors assembled at a board.
  - (g) **"Dividend"** includes cash dividend, dividend in species and bonus shares.
  - (h) **"Electronic"** includes electrical, digital, magnetic, optical, bio-metric, electro-chemical, wireless or electromagnetic technology.

- (i) **"Electronic Transactions Ordinance"** means the Electronic Transactions Ordinance, 2002 or any modification or re-enactment thereof.
- (j) **"In Person"** includes attendance and/or voting at a meeting, personally or by video or telephone-conference or other facility whereby all the participants of the meeting can hear and / or see each other unless expressly stated otherwise by the directors.
- (k) **"Instrument of Transfer"** includes transfer deeds
- (l) **"Member"** means a person whose name is for the time being entered in the register of members by virtue of his being a subscriber to the Memorandum of Association of the company or of his holding by allotment or otherwise any share, scrip or other security which gives him a voting right in the company.
- (m) **"Memorandum"** means the Memorandum of the company as originally framed or as from time to time altered in accordance with law.
- (n) **"Month"** means calendar month according to the English calendar.
- (o) **"Office"** means the registered office for the time being of the company.
- (p) **"Ordinance"** means the Companies Ordinance, 1984 or any modification or re-enactment thereof.
- (q) **"Preference Shares"** not being ordinary shares mean preference shares whether redeemable or irredeemable, participatory or non-participatory, convertible or non-convertible, cumulative or otherwise with the rights, privileges and conditions attaching thereto as are provided by the articles.
- (r) **"Preference Shareholders"** not being ordinary shareholders mean, in relation to the company, every person to whom the company has allotted, or who becomes the holder of such shares and whose name is entered in the register of members.
- (s) **"Proxy"** includes an attorney duly constituted under a power of attorney.
- (t) **"Record"** includes, in addition to a written or printed form, any disc, tape, sound-track, film or other device in which sounds and / or other data is embodied so as to be capable (with or without the aid of some other instrument or machine) of being reproduced therefrom in audible, legible or visual form.
- (u) **"Register"** means, unless the context otherwise requires, the register of members to be kept pursuant to section 147 of the Ordinance.
- (v) **"Registrar"** means a Registrar, defined in section 2 (1) (31), performing the duty of registration of companies under the Ordinance.
- (w) **"Regulations"** mean the rules of governance of the company made by the board from time to time.
- (x) **"Seal"** means the common or official seal of the company.
- (y) **"Section"** means section of the Ordinance.



- (z) "Share" means share in the share capital of the company
- (aa) "Sign" and "Signature" unless otherwise provided in these articles, include respectively lithography, printing facsimile, "advanced electronic signature" which is capable of establishing the authenticity and integrity of an electronic document, as defined by section 2(e) of the Electronic Transactions Ordinance, and names impressed with a rubber or other kind of stamp.
- (bb) "Special Resolution" means the special resolution of the company as defined in section 2(1)(36) of the Ordinance.

### 3. Interpretation

In these articles, unless the context otherwise requires:

- (a) the singular includes the plural and vice versa and words denoting any gender shall include all genders;
- (b) references to any Act, Ordinance, Legislation, Rules or regulations or any provision of the same shall be a reference to that Act, Ordinance, Legislation, rules or regulations or provisions, as amended, re-promulgated or superseded from time to time;
- (c) the terms "include" or "including" shall mean include or including without limitation;
- (d) expressions referring to writing shall, unless the contrary intention appears, be construed as including references to printing, lithography, photography, and other modes of representing or reproducing words in a visible form, including but not limited to, electronic transmission such as facsimile, and electronic mail or any other electronic process, as prescribed by section 3 of the Electronic Transactions Ordinance.
- (e) words importing persons shall include bodies corporate; and
- (f) words and expressions contained in these articles shall bear the same meaning as in the Ordinance.

### REGISTERED OFFICE

- 4. The Registered office of the company shall be in the Province of Punjab as the directors shall from time to time appoint.

### PRIVATE LIMITED COMPANY

- 5. The company is a private limited company within the meanings of section 2(1), Clause (28) of the Companies Ordinance, 1984 and accordingly:

- (a) No invitation shall be issued to the public to subscribe for any shares, debenture or debentures stock of the company;
- (b) The number of members of the company (exclusive of the persons in employment of the company) shall be limited to fifty provided that for the purpose of this provision where two or more persons hold one or more shares jointly they shall be treated as single member; and
- (c) The right to transfer shares in the company is restricted in the manner and to the extent hereinafter appearing.

### BUSINESS

- 6. All branches or kind of business which the company is either expressly or by implication authorised to undertake may be undertaken by the directors at such time or times as they shall think fit,

and further may be allowed by them to be in abeyance, whether such branch or kind of business may have been actually commenced or not, so long as the directors may deem it expedient not to commence or proceed with such branch or kind of business.

## II. CAPITAL

### SHARES

7. The authorized share capital of the company is Rupees 1,000,000,000 (Rupees One Billion only) divided into 100,000,000 (One Hundred Million) shares of Rupees 10 (Rupees Ten) each comprising ordinary shares and preference shares with the power to increase or reduce the capital and to divide the shares in the capital for the time being into several classes in accordance with the provisions of the Companies Ordinance 1984 and rules made there under and to attach thereto respectively such preferential, deferred, qualified or special rights, privileges or conditions as may be determined by or in accordance with the articles of association or the regulations of the company for the time being and to vary, modify, abrogate any such rights, privileges or conditions in such manner as may for the time being be provided by the articles of association or regulations of the company.

8. Subject to section 90 of the Ordinance and any rules in that regard made under the Ordinance, and without prejudice to any special rights previously conferred on the holders of any existing shares or class of shares, any share in the company may be issued with different rights, restrictions and privileges, including but not limited to the following as may be approved by the company by special resolution:

- (1) different voting rights; voting rights disproportionate to the paid-up value of share held; voting rights for specific purposes only; or no voting rights at all;
- (2) different rights for entitlement of dividend, right shares or bonus shares or entitlement to receive the notices and to attend the general meetings;
- (3) rights and privileges for indefinite period, for a limited specified period or for such periods as may from time to time be determined by the company; and
- (4) different manner and mode of redemption, including redemption in accordance with the provisions of these articles, including but not limited to, by way of conversion into shares with such rights and privileges as determined by the company in the manner and mode provided in these articles.

9. Subject to section 95(4)(a) of the Ordinance and any rules in that regard made under the Ordinance, the company may issue shares which are to be redeemed or any other redeemable security, on such terms and in such manner as may be provided in the said section and rules.

10. Subject to provisions of the Ordinance and these articles and subject to any special rights or privileges for the time being attached to any issued shares, the shares in the capital of the company for the time being, including any new shares resulting from an increase in the authorized capital, shall be under the control of the directors who may allot or otherwise dispose of the same or any of them to such persons (subject to article 37), on such terms and conditions, and with such rights and privileges annexed thereto as the resolution creating the same shall direct, and if no direction be given, as the directors shall determine and at such times and in such manner as the directors think fit, either at par or at a premium or subject to section 84 of the Ordinance at a discount, with power to the directors to give any person the right to call for and be allotted shares of any class of the company at par or at a premium or, subject as aforesaid, at a discount, such option being exercisable at such time, and for

such consideration as the directors think fit. Provided that the shares in the capital of the company shall always be treated as fully paid shares and no shares shall be issued as partly paid shares. The directors shall, as regards any allotment of shares, duly comply with such of the provisions.

11. The directors may allot and issue shares in the capital of the company as payment or part payment for any property sold or transferred, or for services rendered, to the company in the ordinary course of its business, and shares so allotted shall be issued as and shall be deemed to be fully paid shares.

12. The board shall, as regards any allotment of shares, duly comply with such provisions of the Ordinance as may be applicable.

13. Except as permitted in the Ordinance and any rules in that regard made under the Ordinance, no part of the funds of the company shall be employed in the purchase of its own shares or in giving, whether directly or indirectly and whether by means of a loan, guarantee, security or otherwise, any financial assistance for the purpose of or in connection with a purchase made or to be made by any person of or any shares in the company.

14. Save as herein otherwise provided, the company shall be entitled to treat the registered holder of any share as the absolute owner thereof and accordingly shall not, except as ordered by a court of competent jurisdiction or as by statute required, be bound to recognise (even when having notice thereof) any benami, equitable, contingent, future, partial or other claim or right to or interest in such share on the part of any other person.

15. Shares may be registered in the name of persons, any limited company or other corporate body. Not more than four persons shall be registered as joint-holders of any share.

16. If any share or shares stand in the name of two or more persons, the person first named in the register shall, as regards receipt of dividend or bonus or service of notices and all or any other matters connected with the company except voting at the meeting and the transfer of shares, be deemed the sole holder.

#### RIGHTS PRIVILEGES AND CONDITIONS ATTACHED TO SHARES

17. As regards income, the profits which the company may determine to distribute in respect of any financial year or other period for which the accounts shall be made up, shall be applied in the following order of priority;

- (1) In paying the holders of the preferences shares, the rights to a preferential dividend, cumulative or non cumulative, as determined by the board on the capital paid up thereon payable as regards each financial year out of the profits of the company resolved to be distributed in respect of that year, but shall not be entitled to any further participation in profits; and
- (2) Subject to the rights of any class of shares for the time being issued, in distributing the balance amongst the holders of the ordinary shares according to the amounts paid up on the ordinary shares held by them respectively.

18. As regards conversion, the company may partly or wholly convert the preference shares at the option of the holders of the preference shares to be converted in accordance, respectively, with the terms and conditions of their issue.

19. As regards redemption, subject to section 85 of the Ordinance, the company may, upon giving the holders of the shares to be redeemed notice in writing, redeem the whole or any parts of the preference shares in accordance, respectively, with the terms and conditions of their issue.

20. As regards capital, on a return of capital in a winding up or otherwise (except upon the redemption of shares of any class of preference shares) the surplus assets of the company remaining after payment of its liabilities shall be applied in the following order of priority:

- (1) in paying to the holders of the preference shares, the capital paid up on the same without any further right to participate in profits or assets; and
- (2) subject to the rights of any other class of shares for the time being issued, in distributing the balance amongst the holders of the ordinary shares according to the amounts paid up on the ordinary shares held by them respectively.

21. As regards entitlement to bonus or right shares, the holders of preference shares shall not be entitled to bonus or right shares in the event that the company, increases its capital by the issue of further shares or otherwise.

22. As regards voting rights, the holders of the preference shares shall not be entitled to receive notice of, attend, or vote at, any general meeting of the company except as otherwise provided by the Ordinance, whereby the holders of such shares would be entitled to vote separately as a class, that is, with respect to voting entitlement of the preference shareholders on matters affecting, respectively, their substantive rights and liabilities. Without prejudice to the foregoing, the holders of preference shares may attend the general meeting of the company as observers with prior permission of the Chairman.

#### CERTIFICATES

23. The Certificates of title to shares and duplicate thereof shall be issued under the seal of the company and signed by two of the directors or by one such director and the secretary provided that such signatures may if necessary be printed lithographed or stamped subject to the approval of the directors.

24. Every member shall be entitled to one certificate for all the shares registered in his name, or, if the directors so approve, to several certificates each for one or more of such shares, but in respect of each certificate for less than one hundred shares, the directors shall be entitled to charge a fee of Rupees 10 or such lesser sum as they may determine. Every certificate of shares shall specify the number and denoting numbers of the shares in respect of which it is issued.

25. The company shall within ninety days after the allotment of any shares, debentures or debenture stock and within forty-five days after receipt by the company of the application for transfer of any such shares, debentures or debenture stock complete and have ready for delivery the certificate of all shares, the debentures and the certificate of all debenture stock allotted or transferred, and unless sent by post or delivered to the person entitled thereto within the period aforesaid the company shall immediately thereafter give notice to that person in the manner prescribed in these articles for the giving of notices to members that the certificate is ready for delivery.

26. If a certificate of shares, debenture or debenture stock is proved to the satisfaction of the company to have been lost or destroyed or, being defaced or mutilated or torn, is surrendered to the

company, and the company is requested to issue a new certificate in replacement thereof, the company shall, after making such enquiry as it may deem fit, advise the applicant within thirty days from the date of application the terms and conditions (as to indemnity and otherwise and as to payment of the actual expenses incurred on such enquiry and of a fee not exceeding ten rupees) on which the company is prepared to issue a new certificate and a time for compliance therewith or of the reasons why the company is unable to issue a new certificate, as the case may be, and in the former case if the applicant shall within the time allowed comply with the terms and conditions specified, the company shall issue a new certificate to the applicant within forty five days from the date of application.

27. The company shall not be bound to issue more than one certificate in respect of a share or shares held jointly by two or more persons and delivery of a certificate for a share to any one of joint holders shall be sufficient delivery to all.

#### TRANSFER AND TRANSMISSION

28. (i) The directors shall not refuse to register the transfer of fully paid shares unless the Instrument of Transfer is defective or invalid or is not accompanied by the certificate of the share(s) to which it relates. The directors may also decline to recognise any Instrument of Transfer unless it is accompanied, in addition to the certificate of the shares to which it relates, by such other evidence as the directors may reasonably require to show the right of the transferor to make the transfer. The directors may waive the production of any certificate upon evidence satisfactory to them of its loss or destruction.

(ii) If the directors refuse to register a transfer of any shares they shall, within thirty (30) days after the date on which the Instrument of Transfer was lodged with the company, send to the transferee and the transferor notice of the refusal indicating the reason for such refusal; provided that if the directors refuse to register a transfer of shares on account of a defect in or the invalidity of the Instrument of Transfer, the transferee shall be entitled, after removal of such defect or invalidity, to re-lodge the Instrument of Transfer with the company.

29. The Instrument of Transfer of any share shall be in writing in the usual common form, or in the following form, or as near thereto as circumstances will admit:

Folio No. \_\_\_\_\_  
Certificate No. \_\_\_\_\_

### TRANSFER DEED

Alliance Sugar Mills (Private) Limited.

I/We, \_\_\_\_\_ of \_\_\_\_\_ in consideration of the sum of Rupees \_\_\_\_\_ paid to me/us by \_\_\_\_\_ of \_\_\_\_\_ hereinafter called the transferee(s), do hereby transfer to the said transferee(s) the \*\* \*\* Ordinary/Preference Shares numbered \_\_\_\_\_ to \_\_\_\_\_ inclusive, in my/our name in the books of Alliance Sugar Mills (Private) Limited to hold unto the said transferee(s), his/her/their executors, administrators and

transfer, subject to the several conditions on which I/we hold the same at the time of the execution hereof, and I/we, the said transferee(s) do hereby agree to accept and take the said shares subject to the same conditions.

As witness our hands the \_\_\_\_\_ day of \_\_\_\_\_.

Signed by the above named transferor in the presence of: -

Witness \_\_\_\_\_  
NIC # \_\_\_\_\_  
Occupation \_\_\_\_\_  
Address \_\_\_\_\_

Transferor's Signature  
Seller's \_\_\_\_\_  
NIC # \_\_\_\_\_

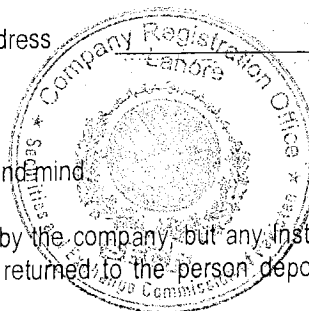
Address \_\_\_\_\_

Signed by the above named transferee in the presence of: -

Witness \_\_\_\_\_  
NIC # \_\_\_\_\_  
Occupation \_\_\_\_\_  
Address \_\_\_\_\_

Transferee's Signature  
Buyer's \_\_\_\_\_  
NIC # \_\_\_\_\_  
Occupation \_\_\_\_\_

Address \_\_\_\_\_



30. No transfer shall be made to a minor or person of unsound mind.

31. All registered instruments of transfer shall be retained by the company, but any instrument of transfer which the directors may decline to register shall be returned to the person depositing the same.

32. The Instrument of Transfer of any share in the company shall be duly stamped and executed both by the transferor and transferee, and the transferor shall be deemed to remain holder of the share(s) until the name of the transferee is entered in the register in respect thereof.

33. On giving seven days previous notice in the manner provided in the Ordinance and article 146, the transfer books and register may be closed during such time as the directors think fit, not exceeding in the whole forty-five days in each year, but not exceeding thirty days at a time.

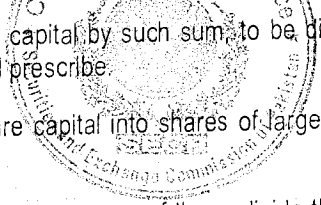
34. The executors or administrators or the nominee of a deceased member (not being one of several joint-holders) shall be the only persons recognised by the company as having any title to the shares registered in the name of such member, and in case of the death of any one or more of the joint-holders of all registered shares, the survivors shall be the only persons, recognised by the company as having any title to or interest in such shares, but nothing herein contained shall be taken to release the estate of a deceased joint-holder from any liability on shares held by him jointly with any other person. Before recognising any executor or administrator, the directors may require him to obtain a Grant of Probate or nomination as mentioned above or Letters of Administration or other legal representation, as the case may be, from some competent Court in Pakistan having effect in Lahore. Provided nevertheless that in any case where the board in their absolute discretion think fit, it shall be lawful for the directors to dispense with the production of Probate or Letters of Administration or such other legal representation upon such terms as to indemnity or otherwise as the directors, in their absolute discretion, may consider necessary.

35. Any committee or guardian of a lunatic or minor member or any person becoming entitled to a share in consequence of the death or bankruptcy or insolvency of any member upon producing such evidence that he sustains the characters in respect of which he proposes to act under this article, or of his title, as the directors think sufficient, shall have the right to be registered as a member in respect of such share, or may, subject to the regulations as to transfer hereinbefore contained, transfer such share.

36. Neither the company nor the directors nor any other officer of the company shall incur any liability for registering or acting upon a transfer of shares apparently made by sufficient parties, although the same may, by reason of any fraud or other cause not known to the company or the directors or any other officer of the company, as aforesaid, be legally inoperative or insufficient to pass the property in the shares proposed or professed to be transferred, and although the transfer may, as between the transferor and transferee, be liable to be set aside, and, notwithstanding that the company may have notice that such Instrument of Transfer was signed or executed and delivered by the transferor in blank as to the name of the transferee or the particulars of the shares transferred, or otherwise in defective manner. And in every such case the person registered as transferee, his executors, administrators and assigns alone shall be entitled to be recognised as the holder of such shares and the previous holder shall, so far as the company is concerned, be deemed to have transferred his whole title hereto.

#### ALTERATION OF CAPITAL

37. The company may by ordinary resolution and subject to compliance with the requirements of section 92 of the Ordinance

- 
- (a) increase the authorized share capital by such sum, to be divided into shares of such amount, as the resolution shall prescribe;
  - (b) consolidate and divide its share capital into shares of larger amount than its existing shares;
  - (c) by sub-division of its existing shares or any of them, divide the whole or any part of its share capital into shares of smaller amount than is fixed by the Memorandum of Association;
  - (d) cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person.

38. The directors may from time to time increase the issued share capital by such sum as they think fit. Except as otherwise permitted by section 86 of the Ordinance, and subject to any special rights or privileges for the time being attached to any issued shares, all shares intended to be issued by the directors shall, before issue, be offered to the members strictly in proportion to the amount of the issued shares held by each member (irrespective of class); provided that fractional shares shall not be offered and all fractions less than a share shall be consolidated and disposed of by the company and the proceeds from such disposition shall be paid to such of the entitled members as may have accepted such offer. Such offer shall be made by notice specifying the number of shares offered, and limiting a time within which the offer, if not accepted, will be deemed to be declined, and after the expiration of that time, or on the receipt of an intimation from the person to whom the offer is made that he declines to accept the shares offered, the directors may dispose of the same in such manner as they think fit. In respect of each such offer of shares the directors shall comply with the provisions of section 86 of the Ordinance and in particular with the provisions of sub-sections (3), (4) and (5) thereof. Any difficulty in

the apportionment of shares amongst the members, such difficulty shall, in the absence of any directions given by the company in general meeting, be determined by the directors.

39. Except so far as otherwise provided by the conditions of issue or by these articles, any capital raised by the creation of new shares shall be considered part of the original capital and shall be subject to the provisions herein contained with reference to transfer and transmission and otherwise.

40. Subject to the provisions of sub-section (2) of section 86 of the Ordinance, if, owing to any inequality in the number of new shares to be issued and the number of shares held by a member entitled to have the offer of such new shares, any difficulty shall arise in the apportionment of such new shares or any of them amongst the members, such difficulty shall, in the absence of any direction in the resolution creating the shares or by the company in general meeting, be determined by the directors.

41. The company may, by special resolution, reduce its share capital in any manner, with and subject to, any incident authorized and consent required by law.

42. The share premium account maintained pursuant to section 83(1) of the Ordinance may, be applied by the company:

- (a) in writing off the preliminary expenses of the company;
- (b) in writing off the expenses of, or the commission paid or discount allowed on, any issue of shares or debentures of the company;
- (c) in providing for the premium payable on the redemption to any redeemable preference shares or debentures of the company; or
- (d) in paying up un-issued shares of the company to be issued as fully paid bonus shares.

43. Subject to the provisions of section 96 to 105 inclusive of the Ordinance, the directors may accept from any member the surrender on such terms and conditions as shall be agreed of all or any of his shares.

#### VARIATION OF SHAREHOLDERS' RIGHTS

44. Whenever the capital is divided into different classes of shares, all or any of the rights and privileges attached to each class may, subject to the provisions of section 108 of the Ordinance, be modified, commuted, affected, abrogated or dealt with by agreement between the company and any person purporting to contract on behalf of that class provided such agreement is (a) ratified in writing by the holders of at least three-fourths in nominal value of the issued shares of the class or (b) confirmed by a special resolution passed at an extraordinary general meeting of the holders of shares of that class and all the provisions hereinafter contained as to general meetings, shall, mutatis mutandis, apply to every such meeting. This article shall not by implication curtail the power of modification which the company would have if this article were omitted.

### III. MEETINGS

#### CONVENING OF GENERAL MEETINGS



45. Except as may be allowed under section 158(1) of the Ordinance, the company shall hold a general meeting once at least in every calendar year within a period of four months following the close of its financial year in the town in which the office is situate and at such time and place as may be determined by the directors, provided that no greater interval than fifteen months shall be allowed to elapse between two such general meetings. The company may, for any special reason and with permission of the Commission, extend the time within which any annual general meeting, not being the first such meeting, shall be held.

46. The company shall hold its annual general meeting in the town in which the registered office is situate; provided that, it may, for any special reason and with permission of the Commission, hold the said meeting at any other place. Save as aforesaid, the company may hold its general meeting at two (2) or more venues using any technology that gives the members as a whole a reasonable opportunity to participate in the meetings.

47. All general meetings of the company, other than annual general meeting, shall be called extraordinary general meetings.

48. The directors may, whenever they think fit, and they shall, on the requisition of the holders of not less than one-tenth of the issued capital of the company, forthwith proceed to convene an extraordinary general meeting of the company. If at any time there are not within Pakistan sufficient directors capable of acting to form a quorum, any director of the company may call an extraordinary general meeting in the same manner as nearly as possible as that in which meetings may be called by the directors, and in the case of such requisition the following provisions shall have effect:

- (1) The requisition must state the objects of the meeting and must be signed by the requisitionists and deposited at the office and may consist of several documents in like form each signed by one or more requisitionists.
- (2) If the directors do not proceed within twenty-one days from the date of the requisition being so deposited to cause a meeting to be called, the requisitionists or a majority of them in value may themselves convene the meeting, but any meeting so convened shall not be held after three months from the date of the deposit.
- (3) Any meeting convened under this article by the requisitionists shall be convened in the same manner as nearly as possible as that in which meetings are to be convened by the directors but shall be held at the office.
- (4) A requisition by joint-holders of shares must be signed by all such holders.

49. (1) Notice of a general meeting shall be sent in the manner hereinafter mentioned at least twenty one (21) days before the date on which the meeting is to be convened to all such persons as are under these articles or the Ordinance entitled to receive such notices from the company and shall specify the place and the day and hour of the meeting and the nature of the business to be transacted thereat.
- (2) In the case of an emergency affecting the business of the company, an extraordinary general meeting may be convened by such shorter notice than that specified in article 47(1) as the Registrar may authorise.
  - (3) Where any special business, that is to say, business other than consideration of the accounts, balance sheet and the reports of the directors and auditors, the declaration of dividend, the appointment and fixation of the remuneration of auditors and, where

the notice convening the meeting provides for the election of directors, the election of directors (all such matters being herein referred to as ordinary business) is to be transacted at a general meeting, there shall be annexed to the notice of such meeting a statement setting out all such facts as may be material for the consideration of such business including the nature and extent of the interest (whether direct or indirect) of any director, and where the item of business involves approval of any document, the time and place appointed for inspection thereof, and to the extent applicable such a statement shall be annexed to the notice also in the case of ordinary business to be transacted at the meeting.

- (4) Where a resolution is intended to be proposed for consideration at a general meeting in some special or particular form, a copy thereof shall be annexed to the notice convening such meeting.
- (5) If a special resolution is intended to be passed at a general meeting, the notice convening that meeting shall specify the intention to propose the resolution as a special resolution.
- (6) A notice for a general meeting at which an election of directors is to take place shall state the number of directors to be elected at that meeting and the names of the retiring directors.
- (7) The notice of every general meeting shall prominently specify that a proxy may be appointed who shall have the right to attend, demand or join in demanding a poll and vote on a poll and speak at the meeting in the place of the member appointing him and shall be accompanied by a form of proxy acceptable to the company.
- (8) The company shall comply with the provisions of section 160(1) and section 50 of the Ordinance with regard to giving notices of general meetings.

50. The accidental omission to give any such notice to, or the non-receipt of notice by, any of the members shall not invalidate the proceedings at any such meeting.

#### PROCEEDINGS AT GENERAL MEETINGS

51. No business shall be transacted at any general meeting unless a quorum of members is present at the time when the meeting proceeds to business; save as herein otherwise, provided two (2) members present in person representing twenty five percent (25%) of the total voting power either of their own account or as proxies shall be a quorum.

52. The Chairman of the board of directors shall preside as Chairman at every general meeting of the company, or if there is no such Chairman, or if he shall not be present in person within fifteen minutes after the time appointed for the holding of the meeting or is unwilling to act, the Chief Executive shall preside as Chairman of the meeting, or if the Chief Executive is absent or unwilling to act, any one of the directors present in person may be elected to be Chairman of the meeting, or if no director be present in person, or if all the directors present in person decline to take the chair, the members present in person shall choose one of their member to be Chairman of the meeting.

53. If within half-an-hour from the time appointed for the meeting, a quorum is not present, the meeting if convened upon such requisition as aforesaid shall be dissolved, but in any other case it shall stand adjourned to the same day in the next week at the same time and place, and if at such adjourned meeting a quorum is not present within half an hour from the time appointed for it, the meeting shall be dissolved.

54. The Chairman may adjourn the meeting from time to time and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for more than seven days, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.

55. In the case of an equality of votes the Chairman shall, both on a show of hands and at the poll, have a casting vote in addition to the vote or votes to which he may be entitled as member.

56. (1) At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands, unless a poll is (before or on the declaration of the result of the show of hands) demanded in accordance with paragraph (2) of this article, and unless a poll is so demanded, a declaration by the Chairman of the meeting that a resolution has, on a show of hands, been carried, or carried unanimously, or by a particular majority, or lost, and an entry to that effect in the book or electronic record of the proceeding of the company shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of or against the resolution.

(2) Any of the following persons may demand a poll:

(a) The Chairman of the meeting, or

(b) One member having the right to vote on the resolution and present in person or by proxy; or

(c) Any member or members present in person or by proxy having not less than one-tenth of the total voting power in respect of the resolution.

57. If a poll is demanded, as aforesaid, it shall be taken (subject to section 168 of the Ordinance) in such manner and at such time and place as the Chairman of the meeting directs, and either at once or after an interval or adjournment of not more than fourteen days from the day on which the poll is demanded, and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was held. The demand for a poll may be withdrawn at any time by the person or persons who made the demand. In case of any dispute as to the admission or rejection of a vote, the Chairman of the meeting shall determine the same, and such determination made in good faith shall be final and conclusive.

58. Any poll duly demanded on the election of a Chairman of a meeting or on any question of adjournment shall be taken at the meeting and without adjournment. A poll demanded on any other question shall be taken at such time, not being more than 14 days from the day on which the poll is demanded as the Chairman of the meeting directs.

59. The demand of a poll shall not prevent the continuance of a meeting for the transaction of any business other than the question on which a poll has been demanded.

#### VOTES OF MEMBERS

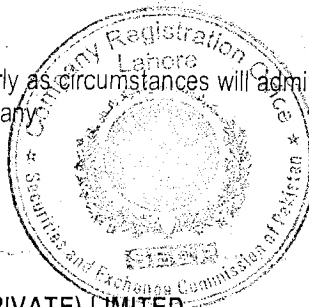
60. Subject to section 160 and any rights or restrictions for the time being attached to any class or classes of shares, every member present in person (where all the participants of a general meeting can see each other) shall have, whether on a show of hands or on a poll, votes proportionate to the paid up value of the shares or other securities carrying voting rights held by him according to the entitlement of the class of such shares or securities, as the case may be provided that, the provisions of section 178 shall apply in the case of the election of directors.

61. Without prejudice to articles 63 and 73, on a show of hands, every member present in person shall have one vote and upon a poll every member present in person or by proxy shall have one vote in respect of each share held by him. Provided always that in the case of an election or removal of a director, the provisions of articles 88 and 91 respectively shall apply.
62. On a poll a member entitled to more than one vote need not, if he votes, use all his votes or cast all the votes he uses in the same way.
63. Any company or other corporation which is a member of the company may by resolution of its directors or other governing body authorise such person as it thinks fit to act as its representative at any meeting of the company or of any class of members of the company, and the person so authorised shall be entitled to exercise the same powers on behalf of the company or corporation which he represents as that company or corporation could exercise if it were an individual member of the company, present in person. The production before or at the meeting of a copy of such resolution purporting to be signed by a director or the secretary of such company or corporation and certified by him as being a true copy of the resolution shall be accepted by the company as sufficient evidence of the validity of the appointment of such representative.
64. Any person entitled under article 34 to any shares may vote at any general meeting in respect thereof in the same manner as if he were the registered holder of such shares, provided that forty-eight hours at least before the time of holding the meeting or adjourned meeting, as the case may be, at which he proposes to vote he shall satisfy the directors of his right to such shares, or the directors shall have previously admitted his right to vote at such meeting, in respect thereof. If any member be a lunatic, idiot or non compos mentis, he may vote, whether by a show of hands or at a poll, by his committee, curator bonis or other legal curator and such last mentioned persons may give their votes by proxy.
65. Where there are jointly registered holders of any share, any one of such persons may vote at any meeting either in person or by proxy in respect of such share as if he were solely entitled thereto; and if more than one of such joint-holders be present at any meeting, either in person or by proxy, that one of the said persons so present whose name stands first in the register in respect of such share shall alone be entitled to vote in respect thereof. Several executors or administrators of a deceased member in whose name any share stands shall for the purposes of this article be deemed joint holders thereof.
66. On a poll votes may be given either in person (including without limitation a representative of a company duly authorised under article 62) or by proxy.
67. No objection shall be raised to the qualification of any voter except at the meeting or adjourned meeting at which the vote objected to is given or tendered, and every vote not disallowed at such meeting shall be valid for all purposes. Any such objection made in due time shall be referred to the Chairman of the meeting, whose decision shall be final and conclusive.
68. The instrument appointing a proxy shall be in writing under the hand of the appointer (such expression shall exclude any reference to the Electronic Transactions Ordinance in accordance section 31 (1) of the Electronic Transactions Ordinance) or of his attorney duly authorised in writing (such expression shall exclude electronic transmission as prescribed by section 31(1) of the Electronic Transactions Ordinance) or if such appointer is a corporation under its common seal or signed by an officer or an attorney duly authorised by it (Such expression shall exclude any reference to the Electronic Transactions Ordinance in accordance section 31 (1) of the Electronic Transactions Ordinance). Save as provided by article 74, no person shall be appointed a proxy who is not a member of the company and qualified to vote.

69. Subject to article 67 hereof, the instrument appointing a proxy and the power of attorney or other authority (if any) under which it is signed, or a notarially certified copy of that power or authority, shall be deposited (Such expression shall hereinafter include, where permitted by law, receipt in accordance with section 15 of the Electronic Transactions Ordinance) at the office not less than forty-eight hours before the time for holding the meeting at which the person named in the instrument proposes to vote, and in default the instrument of proxy shall not be treated as valid.

70. A vote given in accordance with the terms of an instrument appointing a proxy shall be valid notwithstanding the previous death or insanity of the principal or revocation of the instrument or transfer of the share in respect of which the vote is given, provided no intimation in writing of the death, insanity, revocation or transfer of the share shall have been received at the office before the meeting. Provided nevertheless that the Chairman of any meeting shall be entitled to require such evidence as he may in his discretion think fit of the due execution of an instrument of proxy and that the same has not been revoked.

71. Every instrument appointing a proxy shall, as nearly as circumstances will admit, be in the form or to the effect following and shall be retained by the company.



### ALLIANCE SUGAR MILLS (PRIVATE) LIMITED

#### Proxy Form

I / We, \_\_\_\_\_ of \_\_\_\_\_  
being the member of Alliance Sugar Mills (Private) Limited vide Registered Folio No. \_\_\_\_\_  
hereby appoint Mr./Mrs./Miss. \_\_\_\_\_  
who is a member of the company vide Registered Folio No. \_\_\_\_\_  
or failing whom Mr./Mrs./Miss. \_\_\_\_\_  
Who is also a member of the company vide Registered Folio No. \_\_\_\_\_  
as my proxy to attend and vote for me and own my behalf at the annual / extra ordinary general meeting of the company to  
be held on (day) (date) (month) (year) at \_\_\_\_\_ A.M / P.M and / or at any adjournment thereof.

(Signature on Rupees  
Five Revenue Stamp)

(Signature should agree with the specimen  
signature registered with the company)

#### WITNESSES:

i. Signature \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_

ii. Signature \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_

CNIC [ ] [ ] [ ] [ ] - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

CNIC [ ] [ ] [ ] [ ] - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

or passport No. \_\_\_\_\_

or passport No. \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## NOTES

- I. The proxy form must be signed across Rupees Five revenue stamp and it should be deposited in the company's registered office not less than 48 hours before the time of holding the meeting.
- II. If a member appoints more than one proxy and more than one instruments of proxy are deposited by a member with the company, all such instruments of proxy shall be rendered invalid.
- III. A member entitled to attend may appoint an other member as his / her proxy or may by power of attorney authorize any other person as his / her agent to attend, speak and vote at the meeting. A corporation or a company, as the case may be, being a member of the company, may appoint any of its officials or any other person to act as its representative and the person so authorized shall be entitled to the same powers as if he were an individual share holder.

Provided always that an instrument appointing a proxy may be in the form set out in regulation 39 of table A of the first schedule to the ordinance or a form as above which is near thereto.

## IV. DIRECTORS

### NUMBER OF DIRECTORS

72. Subject to the provisions of these articles and the Ordinance, all directors shall be elected by the members in general meeting.

73. The company shall have at least two directors. Subject to the said minimum, the directors themselves shall determine from time to time in the manner provided in this article the number of directors that the company shall have. The directors shall fix the number of elected directors 35 days before the convening of the general meeting at which the directors are to be elected that the company shall have from the effective date of the election. The number of elected directors so fixed by the directors shall not be changed except with the prior approval of the company in general meeting.

### ALTERNATE DIRECTORS

74. When any director intends to be, or is living outside Pakistan or otherwise he may with the approval of the directors appoint any person to be his alternate director, and such alternate director during the absence of the appointer from Pakistan, shall be entitled to receive notice of and to attend and vote at meeting of directors and shall be subject to and entitled to the provisions contained in these articles with reference to directors and may exercise and perform all such powers, directions and duties as his appointer could have exercised or performed including the power of appointing another alternate director. An alternate director so appointed shall not be required to hold any qualification. Such appointment shall be recorded in the directors minute book. A director may at any time by notice in writing to the company remove an alternate director appointed by him. The alternate director shall cease to be such provided that if any director retires but is re-elected at the meeting at which such retirement took effect any appointment made by him pursuant to this article which was in force immediately prior to this retirement and re-election and which has not otherwise ceased to be effectively shall continue to operate after his re-election as if he had not so retired. An alternate director shall not be deemed to be the agent of the director appointing him but shall be reckoned as one with his

appointer. All appointments and removals of alternate directors shall be effected by writing under the hand of the director making or revoking such appointment and left at the office. For the purpose of assessing a quorum in accordance with the provisions of article 96 hereof an alternate director shall be deemed to be director. Any director may act an alternate director for any one or more directors, as well as being able to act as a director in his own right. An alternate director may resign as such upon giving thirty (30) days prior notice to the board to this effect. An alternate director need not be a member of the company.

75. Notwithstanding article 146, an alternate director, even if not a member, shall, in the absence of a direction to the contrary in the instrument appointing him, be entitled to notice of general meetings of the company and (subject to the provisions of article 67) to vote at such meetings on behalf of his appointer, if his appointer is a member of the company, and generally to represent his appointer.

#### CHIEF EXECUTIVE

76. The company shall have an office of Chief Executive which shall be filled from time to time by the directors who may appoint a director or (subject to section 201 of the Ordinance) any other person to be the Chief Executive of the company for a period not exceeding three years and on such terms and conditions as the directors may think fit, and such appointment shall be made within fourteen days from the date on which the office of Chief Executive falls vacant. If the Chief Executive at any time is not already a director he shall be deemed to be a director of the company notwithstanding that the number of directors shall thereby be increased and he shall be entitled to all the rights and privileges and shall be subject to all liabilities of the office of director. Upon the expiry of his period of office, a Chief Executive shall be eligible for re-appointment. The Chief Executive may be removed from office in accordance with the provisions of section 202 of the Ordinance notwithstanding anything contained in these articles or in any agreement between the company and the Chief Executive.

77. A Chief Executive of the company shall receive such remuneration as the directors may determine and it may be made a term of his appointment that he be paid a pension and/or gratuity and/or other benefits on retirement from his office.

78. The directors may from time to time entrust to and confer upon the Chief Executive for the time being such of the powers exercisable under these articles by the directors as they may think fit, and may confer such powers for such time, and to be exercised for such objects and purposes, and upon such terms and conditions, and with such restrictions as they think expedient; and they may confer such powers, either collaterally with, or to the exclusion of, and in substitution for all or any of the powers of the directors in that behalf; and may from time to time revoke, withdraw, alter or vary all or any of such powers.

#### QUALIFICATION AND REMUNERATION OF DIRECTORS

79. Any director who serves on any committee or who devotes special attention to the business of the company, or who otherwise performs services which in the opinion of the directors are outside the scope of the ordinary duties of a director, may be paid such extra remuneration as the directors may determine from time to time. The remuneration of a director for attending meetings of the board shall from time to time be determined by the directors.

80. Each director of the company may, in addition to any remuneration receivable by him, be reimbursed his reasonable travelling and hotel expenses incurred in attending meetings of the directors or of the company or otherwise whilst employed on the business of the company.

81. A director shall not be qualified as representing the interests of a member or members holding shares of the requisite value unless he is appointed as such representative by the member or members concerned by notice in writing addressed to the company specifying the shares of the requisite value appropriated for qualifying such director. Shares thus appropriated for qualifying a director shall not, while he continues to be such representative, be appropriated for qualifying any other director. A director shall acquire his share qualification within two (2) months from the effective date of his appointment director.

82. The continuing directors may act notwithstanding any vacancy in their body so long as their number is not reduced below the number fixed by or pursuant to these articles as the necessary quorum of directors.

83. The office of a director shall ipso facto be vacated if:

- (a) he ceased to hold the share qualification, if any, necessary for his appointment; or
- (b) he is found to be of unsound mind by a court of competent jurisdiction; or
- (c) he is adjudged an insolvent; or has applied to be adjudicated as an insolvent and his application is pending or is an undischarged insolvent; or
- (d) he has been convicted by a court of law for an offence involving moral turpitude;
- (e) he or any firm of which he is a partner or any private company of which he is a director without the sanction of the company in general meeting accepts or holds any office of profit under the company other than that of a chief executive or legal or technical adviser or a banker in contravention of the provisions of section 188 (i) (c) of the Ordinance;
- (f) he absents himself from three consecutive meetings of the directors or from all meetings of the directors for a continuous period of three months, whichever is the longer, without leave of absence from the board of directors; or
- (g) he or any firm of which he is a partner or any private company of which he is a director accepts a loan or guarantee from the company in contravention of section 195 of the Ordinance; or
- (h) he acts in contravention of section 214 of the Ordinance; or
- (i) by notice in writing to the company he resigns his office; or
- (j) he is removed from office by resolution of the company in general meeting in accordance with section 181 of the Ordinance;
- (k) his appointment is withdrawn by the Authority nominating him as director;
- (l) he has betrayed lack of fiduciary behaviour and a declaration to the effect has been made by the court under section 217 of the Ordinance at any time during the preceding five years.

84. Subject to authorisation being given by the directors in accordance with section 196(2)(g) of the Ordinance, a director shall not be disqualified from contracting with the company either as vendor, purchaser or otherwise, nor shall any such contract or arrangement entered into by or on behalf of the company with any company or partnership of or in which any director of the company shall be a member or otherwise interested, be avoided, nor shall any such director so contracting or being such



member or so interested be liable to account to the company for any profit realised by any such contract or arrangement by reason of such director holding that office or of the fiduciary relationship so established. A director who, or whose spouse or minor child, is in any way, whether directly or indirectly, concerned or interested in any contract or arrangement or proposed contract or arrangement with the company shall disclose the nature of such concern or interest in accordance with section 214 of the Ordinance that is to say:

(a) in the case of a contract or arrangement to be entered into, at the meeting of the directors at which the question of entering into the contract or arrangement is first taken into consideration or, if the director was not, on the date of that meeting, concerned or interested in the contract or arrangement, at the first meeting of the directors held after he becomes so concerned or interested; and

(b) in the case of any other contract or arrangement, at the first meeting of the directors held after the director becomes concerned or interested in the contract or arrangement.

85. A general notice that any director of the company is a director or a member of any other named company or is a member of any named firm and is to be regarded as interested in any subsequent transaction with such company or firm shall, as regards any such transaction, be sufficient disclosure under this article. Provided, however, that any such general notice shall expire at the end of the financial year in which it was given and may be renewed for a further period of one financial year at a time by giving fresh notice in the last month of the financial year in which it would otherwise expire.

86. Whereby any contract or resolution of the directors an appointment or a variation in the terms of an existing appointment is made (whether effective immediately or in the future) of a Chief Executive, whole time director or secretary of the company, in which appointment of any director of the company is, or after the contract or resolution becomes, in any way, whether directly or indirectly, concerned or interested, or whereby any contract or resolution of the directors, an appointment or a variation in the terms of appointment is made (whether effective immediately or in the future) of a Chief Executive, the company shall inform the members of such appointment or variation in the manner required by section 218 of the Ordinance and shall comply with the requirements of that section in regard to the maintaining of such contracts and resolutions open for inspection by members at the office, the provision of certified copies thereof and extracts therefrom and otherwise.

87. In accordance with section 219, the company shall maintain at its office a register or electronic record, in which shall be entered separately particulars of all contracts, arrangements or appointments in which the directors are interested. Such register or electronic record shall be open to inspection to the members during business hours, subject to any reasonable restriction that may be imposed by the company in general meeting.

88. A director of the company may be or become a director of any other company promoted by the company or in which the company may be interested as a vendor, shareholder or otherwise, and no such director shall be accountable for any benefits received as a director or member of such other company.

#### ELECTION OF DIRECTORS

89. The number of directors determined by the directors under article 72 shall be elected to office by the members in general meeting in the following manner, namely:

(a) a member present in person or by proxy shall have such number of votes as is equal to the product of voting shares held by him and the number of directors to be elected

- (b) a member may give all his votes to a single candidate or divide them between more than one of the candidates in such manner as he may choose, and
- (c) the candidate who gets the highest number of votes shall be declared elected as director and then the candidate who gets the next highest number of votes shall be so declared, and so on until the total number of directors to be elected has been so elected.

If the number of persons who offer themselves to be elected as directors is not more than the number of vacancies for which elections are being held, such persons being otherwise eligible shall be deemed to have been elected as directors from the date on which the election was proposed to be effective.

90. A director elected under article 88 shall hold office for a period of three years unless he earlier resigns or becomes disqualified from being a director, or otherwise ceases to hold office.

91. A retiring director of the company shall be eligible for re-election.

92. The company in general meeting may remove a director from office by a resolution passed with the requisite number of votes determined in accordance with the provisions of section 181 of the Ordinance.

93. Any casual vacancy occurring among the directors may be filled up by the directors and the person so appointed shall hold office for the remaining period of the director in whose place he is appointed. Provided that the directors may not fill a casual vacancy by appointing any person who has been removed from the office of a director of the company under article 91.

94. No person including a retiring director of the company shall be eligible for election to the office of director of the company at any general meeting unless he has, not less than fourteen days before the date of the meeting, left at the office, a notice in writing, duly signed, signifying his candidature for the office.

95. The company shall keep at the office a register of the directors and officers, containing the particulars required by section 205 of the Ordinance and the company shall otherwise comply with the provisions of that section as regards furnishing returns to the Registrar and giving inspection of the register.

#### PROCEEDINGS OF DIRECTORS

96. The directors shall meet together for the despatch of business, adjourn and otherwise regulate their meetings and proceedings as they may think fit in accordance with the Ordinance. Questions arising at any meeting shall be decided by a majority of votes and in case of an equality of votes the Chairman shall have a second or casting vote.

97. The quorum necessary for the transaction of the business of the directors shall not be less than two present in person. An alternate director whose appointment is effective shall be counted in a quorum. If all the directors except one are disqualified from voting, the matter should be decided in general meeting.

98. A director may, and the secretary on the requisition of a director shall, at any time summon a meeting of the directors. Such meetings may be held using any technology consented to by all the directors, including but not limited to telephone and video conferencing. The consent may be a standing

one, withdrawable by a director only within a reasonable period of time before the meeting. It shall not be necessary to give notice of a meeting of directors to any director for the time being absent from Pakistan.

99. The board of directors of the company shall from time to time elect one of the directors as Chairman of the board of directors of the company and determine the period for which he is to hold office and his remuneration. The Chairman or in his absence the Chief Executive shall preside over all meetings of the board of directors, but if at any meeting neither the Chairman nor the Chief Executive is present in person within half an hour of the time appointed for holding the same, the directors present in person may choose one of their number to be Chairman of the meeting.

100. A meeting of the directors at which a quorum is present shall be competent to exercise all or any of the authorities, powers and discretion by or under these articles for the time being vested in or exercisable by the directors generally.

101. The directors may from time to time delegate of their powers to committees consisting of such members or members of their body as they think fit, and may from time to time revoke such delegation. Any committee so formed shall, in the exercise of the powers so delegated, conform to any regulations that may from time to time be imposed upon it by the directors.

102. The meeting and proceedings of any such committee consisting of two or more members shall be governed by the provisions herein contained for regulating the meetings and proceedings of the directors, so far as the same are applicable thereto and are not superseded by any regulations made by the directors under article 100.

103. All acts done by any meeting of the directors or by a committee of the directors or by any person acting as a director of the company shall, notwithstanding that it shall afterwards be discovered that there was some defect in the appointment or continuance in office of any such directors or person acting as aforesaid, or that they or any of them were disqualified or had vacated office, or were not entitled to vote, be as valid as if every such person had been duly appointed or had duly continued in office and was qualified and had continued to be a director and had been entitled to be a director. Provided that nothing in this article shall be deemed to give validity to acts done by any such director after the appointment of such director has been shown to be invalid.

104. A resolution, other than resolution in respect of any matter specified in section 196(2) of the Ordinance circulated through fax or email or any form of electronic transmission to all the directors for the time being entitled to receive notice of a meeting of the directors, passed without any meeting of the directors or of a committee of directors and signed or affirmed through fax or email or any form of electronic transmission, by a majority of all directors in writing under the hands of all directors (or in their absence their alternate directors) for the time being in Pakistan, being not less than the quorum required for meetings of the directors, or as the case may be of the members of the committee, shall be valid and effectual as if it had been passed at the meeting of the directors, or as the case may be of such committee, duly called or constituted. The resolution in writing of the company may consist of several copies of a document signed by one or more director(s) and takes effect at the date and time on which the last director, necessary for the resolution to be passed, signs a copy of the resolution; or a record of several signed electronic messages each indicating the identity of the sender, the text of the resolution and the sender's agreement or disagreement to the resolution, as the case may be and such a resolution takes effect on the date on which the last director's message, necessary for the resolution to be passed, is received.

105. If any director of the company, being willing, shall be called upon to perform extra services or to make any special exertions in going or residing away from his place of business for the time being for any of the purposes of the company or in giving special attention to the business of the company as a member of a committee of the directors, the company may remunerate such director so doing either by a fixed sum or by a percentage of profits or otherwise as may be determined by the directors, and such remuneration may be either in addition to or in substitution for his or their share in the remuneration above provided for the directors.

#### MINUTES

106. The directors shall cause minutes to be duly entered in books provided for the purpose of or as an electronic record, of,

- (a) all appointments of officers;
- (b) the names of the directors present in person at each meeting of the directors and of any committee of the directors;
- (c) all orders made by the directors and committees of the directors;
- (d) all resolutions and proceedings of general meeting and of meetings of the directors and of the committees of the directors;

and any such minutes of any meeting of the directors or of any such committee or of the company, if purporting to be signed by the Chairman of such meeting or by the Chairman of the next succeeding meeting, shall be prima facie evidence of the matter stated in such minutes.

#### POWERS AND DUTIES OF DIRECTORS

107. The directors shall duly comply with the provisions of the Ordinance. In particular and without prejudice to the generality of the foregoing, the company shall comply with the provisions of the Ordinance in regard to the registration of the particulars of mortgages and charges affecting the property of the company or created by it, to the keeping of a register of the directors, and to the sending to the Registrar of an annual list of members and a summary of particulars relating thereto, and notice of any consolidation or increase of share capital, sub-division of shares, and copies of special resolutions and a copy of the register of directors and notifications of any changes therein. All such information may be stored as an electronic record and transmitted accordingly, where possible.

108. The control of the company shall be vested in the directors, and the business of the company shall be managed by the directors who may exercise all such powers of the company and do all such acts and things as may be exercised or done by the company as by the Ordinance or by these articles or by a special resolution expressly directed or required to be exercised or done by the company in general meeting, subject nevertheless to any regulations of these articles, to the provisions of the Ordinance, and to such regulations being not inconsistent with the aforesaid regulations or provisions, as may be prescribed by the company in general meeting; but no regulation made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if that regulation had not been made.

109. Without prejudice to the general powers conferred by article 107 and to any other powers or authorities conferred by these articles on the directors, it is hereby expressly declared that the directors shall have the following powers, that is to say, power:

- (1) To purchase or otherwise acquire for the company any property, rights or privileges which the company is authorised to acquire at such price and generally on such terms and conditions as they think fit, and to sell, let, exchange or otherwise dispose of absolutely or conditionally any part of the property, privileges and undertaking of the company upon such terms and conditions, and for such consideration, as they may think fit.
- (2) At their discretion to pay for any property, rights, privileges acquired by or services rendered to the company either wholly or partially in cash or in shares (subject to the provisions of section 86 of the Ordinance) bonds, debentures or other securities of the company. Any such bonds, debentures or other securities may be either specifically charged upon all or any part of the property of the company or not so charged.
- (3) To open account with any bank or financial institution and deposit into and withdraw money from such accounts from time to time.
- (4) To make, draw, endorse, sign, accept, negotiate and give all cheques, bills of lading, drafts, orders, bills of exchange, and other promissory notes and negotiable instruments required in the business of the company.
- (5) To secure the fulfilment of any contracts, agreements or engagements entered into by the company by mortgage or charge of all or any of the property of the company for the time being or in such other manner as they may think fit.
- (6) Subject to the provisions of the Ordinance, to appoint and at their discretion remove or suspend such agents (other than Managing Agents), managers, secretaries, officers, employees for permanent, temporary or special services as they may from time to time think fit, and to determine their powers and duties and fix their salaries or emoluments and to require security in such instances and to such amount as they think fit.
- (7) To appoint any person or persons (whether incorporated or not) to accept and hold in trust for the company any property belonging to the company or in which it is interested or for any other purposes, and to execute and do all such deeds, documents and things as may be requisite in relation to any such trust and to provide for the remuneration of such trustee or trustees.
- (8) To institute, conduct, defend, compound or abandon any legal proceedings by or against the company or its officers or otherwise concerning the affairs of the company and also to compound and allow time for payment or satisfaction of any debts due and of any claims or demands by or against the company.
- (9) To refer claims or demands by or against the company to arbitration and observe and perform the awards.
- (10) To make and give receipts, releases and other discharges for money payable to the company and for the claims and demands of the company.
- (11) To act on behalf of the company in all matters relating to bankrupts and insolvents.
- (12) To determine who shall be entitled to sign on the company's behalf bills, notes, receipts, acceptances, endorsements, cheques, releases, contracts and documents.
- (13) From time to time to provide for the management of the affairs of the company either in different parts of Pakistan or elsewhere in such manner as they think fit, and in particular to establish branch offices and to appoint any persons to be the attorneys or agents of the company with such powers (including power to sub-delegate) and upon such terms as may be thought fit.
- (14) To invest and deal with any of the moneys of the company not immediately required for the purposes thereof upon such securities and in such manner as they may think fit, and from time to time to vary or realise such investments.
- (15) To execute in the name and on behalf of the company in favour of any director of the company or other person who may incur or be about to incur any personal liability for

- the benefit of the company, such mortgages of the company's property (present and future) as they think fit, and any such mortgage may contain a power of sale and such other powers, covenants and provisions as shall be agreed on.
- (16) To give to any person employed by the company, a commission on the profits of any particular business or transaction or a share in the general profits of the company, and such commission or share of profits shall be treated as part of the working expenses of the company.
  - (17) From time to time to make, vary and repeal bye-laws for the regulation of the business of the company, its employees.
  - (18) To enter into all such negotiations and contracts and rescind and vary all such contracts and execute and do all such acts, deeds and things in the name and on behalf of the company as they may consider expedient for or in relation to any of the matters aforesaid or otherwise for the purposes of the company.
  - (19) To establish, maintain, support and subscribe to any charitable or public object, and any institution, society, or club which may be for the benefit of the company or its employees, or may be connected with any town or place where the company carries on business; to give pensions, gratuities, or charitable aid to any person or persons who have served the company or to the wives, children, or dependants of such person or persons, that may appear to the directors just or proper, whether any such person, his widow, children or dependants, have or have not a legal claim upon the company.
  - (20) Subject to the provisions of section 227 of the Ordinance, before recommending any dividends, to set aside portions of the profits of the company to form a fund to provide for such pensions, gratuities, or compensation, or to create any provident or benefit fund in such or any other manner as to the directors may seem fit.
  - (21) Subject to the provision of the Ordinance to accept from any member, on such terms and conditions as shall be agreed a surrender of his shares or any part thereof.
  - (22) To make advances and loans without security or on such security as they may deem proper and as permissible under the law.
  - (23) To make and alter rules and regulations concerning the time and manner of payment of the contributions of the employees and the company respectively to any such funds and the accrual, employment, suspension and forfeiture of the benefits of the said fund and the application and disposal thereof, and otherwise in relation to the working and management of the said fund as the directors shall from time to time think fit.
  - (24) To delegate all or any of the powers hereby conferred upon them to such person or persons as they may from time to time think fit.
  - (25) Subject to section 213 of the Ordinance to authorise the having of an official seal of the company for use abroad.
  - (26) To appoint alternate director/directors.

#### POWER OF ATTORNEY

110. The directors may from time to time and at any time by power of attorney appoint any company, firm or person (including any director or officer of the company) or body of persons, whether nominated directly or indirectly by the directors, to be the attorney or attorneys of the company for such purposes and with such powers, authorities and discretions and for such period and subject to such conditions as they may think fit, and any such powers of attorney may contain such provisions for the protection and convenience of persons dealing with any such attorney to delegate all or any of the powers, authorities and discretions vested in him; and without prejudice to the generality of the foregoing any such power of attorney may authorise the attorney to institute, conduct, defend, compound or abandon any legal proceedings by or against the company, whether generally or in any particular case.

## BORROWING POWERS

111. (1) The directors may exercise all the powers of the company to borrow money and to mortgage or charge its undertaking, property and assets (both present and future), and to issue debentures, debenture stocks, and other securities, whether outright or as collateral security for any debt, liability or obligation of the company or of any third party
- (2) In exercising the powers of the company aforesaid the directors may, from time to time and on such terms and conditions as they think fit, raise money from banks and financial institutions and from other persons under any permitted system of financing, whether providing for payment of interest or some other form of return, and in particular the directors may raise money on the basis of the mark up on price, musharika, modaraba or any other permitted mode of financing, and without prejudice to the generality of the foregoing the directors may exercise all or any of the powers of the company arising under section 19(2) of the Ordinance.
- (3) In regard to the issue of securities the directors may exercise all or any of the powers of the company arising under sections 19(2), 87 and 120 of the Ordinance and in particular the directors may issue any security as defined in section 2(1)(34) of the Ordinance or may issue any instrument or certificate representing redeemable capital as defined in section 2(1)(30A) of the Ordinance or participatory redeemable capital as defined in section 2(1)(25) of the Ordinance.
112. Debentures, debenture-stock, bonds and other securities may be made assignable free from any equities between the company and the person to whom the same may be issued.
113. Any debentures, debenture-stock, bonds or other securities may be issued at a discount, premium or otherwise and with any special privileges as to redemption, surrender, drawing, allotment of shares, attending and voting at general meetings of the company, appointment of directors of the company or otherwise.
114. The directors shall cause a proper register to be kept in accordance with the provisions of section 135 of the Ordinance, of all mortgages and charges specifically affecting the property of the company, and shall duly comply with the provisions of the sections of the Ordinance, namely, sections 121 and 122 (Registration of mortgages and charges), section 128 (Endorsement of certificates), section 129 (Filing of prescribed particulars), section 130 (Keeping of a copy of every instrument creating any mortgage or charge by the company at the office) and section 132 (Giving of intimation of the payment or satisfaction of any charge or mortgage created by the company).
115. Every register of holders of debentures of the company may be closed for any periods not exceeding in the whole forty five days in any year and not exceeding thirty days at a time. Subject as aforesaid, every such register shall be open to the inspection of members or debenture holders. But the company may in general meeting impose any reasonable restrictions, so that at least two hours, in each day when such register is open, for inspection.
116. Subject to the provisions of section 76 of the Ordinance, no transfer of registered debentures shall be registered unless a proper Instrument of Transfer duly stamped and executed by the transferor

and transferee has been delivered to the company together with the certificate or certificates of the debentures.

117. If the directors refuse to register the transfer of any debentures, they shall, within thirty days from the date on which the Instrument of Transfer was lodged with the company, send or cause to be sent to the transferee and transferor notice of the refusal.

118. The company shall comply with the provisions of section 136 of the Ordinance as to allowing inspection of copies kept at the office in pursuance of section 130 of the Ordinance, and as to allowing inspection of the register of mortgages to be kept at the office in pursuance of section 135 of the Ordinance.

119. The company shall comply with the provisions of sections 113 and 150 of the Ordinance as to supplying copies of any register of holders of debentures or of any trust deed for securing any issue of debentures.

#### LOCAL MANAGEMENT

120. Subject to the provisions of sections 206 and 207 of the Ordinance, directors may from time to time provide for the management of the affairs of the company outside Pakistan or in any special locality in Pakistan in such manner as they shall think fit and the following provisions shall operate without prejudice to the general powers hereby conferred.

- (1) The directors may from time to time and at any time establish any local boards or agencies for managing any of the affairs of the company outside Pakistan or in any specified locality in Pakistan and may appoint any persons to be members of such local board or any managers or agents and may fix their remuneration.
- (2) The directors may from time to time and at any time delegate to any persons so appointed any of the powers, authorities and discretions for the time being vested in the directors and may authorise the members for the time being of any such local board or any of them to fill up any vacancies therein and to act notwithstanding vacancies and any such appointment or delegation may be made on such terms and subject to such conditions as the directors may think fit; and the directors may at any time remove any person so appointed and may annul or vary any such delegation.
- (3) The directors may at any time and from time to time, by power of attorney under the seal of the company, appoint any person to be the attorneys of the company for such purposes and with such powers, authorities and discretions (not exceeding those vested in or exercisable by the directors under these articles) and for such period and subject to such conditions as the directors may from time to time think fit; and any such appointment may, if the directors think fit, be made in favour of all or any of the members of any local board established as aforesaid, or in favour of any company or of the members, directors, nominees or managers of any company or firm, and any such power of attorney may contain such provisions for the protection or convenience of persons dealing with such attorneys as the directors think fit.
- (4) Any such delegates or attorneys as aforesaid may be authorised by the directors to sub-delegate all or any of the powers, authorities and discretions for the time being vested in them.



## V. ACCOUNTS

(References to books of account, balance sheet, profit and loss accounts and auditors' report shall hereinafter mutatis mutandis include all electronic forms of record or storage of the company.)

121. The directors shall cause to be kept proper books of account as required under section 230.
122. The books of account shall be kept at the registered office of the company or at such other place as the directors shall think fit and shall be open to inspection by the directors during business hours.
123. The directors shall from time to time determine whether and to what extent and at what time and places and under what conditions or regulations the accounts and books or papers of the company or any of them shall be open to the inspection of members not being directors, and no member (not being a director) shall have any right of inspecting any account and books or papers of the company except as conferred by law or authorised by the directors or by the company in general meeting.
124. The directors shall as required by sections 233 and 236 cause to be prepared and to be laid before the company in general meeting such profit and loss accounts and balance sheets duly audited and reports as are referred to in those sections.
125. A balance sheet, profit and loss account, and other reports referred to in the preceding Article shall be made out in every year and laid before the company in the annual general meeting made up to a date not more than three months before such meeting. The balance sheet and profit and loss account shall be accompanied by a report of the auditors of the company.
126. A copy of the balance sheet and profit and loss account and report of auditors shall, at least twenty-one days preceding the meeting, be sent to the persons entitled to receive notices of general meetings in the manner in which notices are to be given.
127. Every account of the company when audited and approved by a general meeting shall be conclusive except as regards any errors discovered therein within three months next after the approval hereof. Whenever any such error is discovered within that period the account shall forthwith be corrected and henceforth shall be conclusive.
128. The directors shall in all respects comply with the provisions of sections 230 to 236.
129. Auditors shall be appointed and their duties regulated in accordance with sections 252 to 255.

## ANNUAL RETURNS

130. The company shall make the requisite annual returns in accordance with the provisions of section 156 of the Ordinance.

## VI. DIVIDENDS AND RESERVES

131. The company in general meeting may declare dividend but no dividend shall exceed the amount recommended by the board.

132. The directors may from time to time pay to the members such interim dividends as appear to the directors to be justified by the profits of the company.

133. No dividend shall be paid otherwise than out of profits of the year or any other undistributed profits. No unpaid dividend shall bear interest against the company.

134. The dividend warrants shall be sent by the company by registered post unless the shareholder entitled to receive the dividend requires otherwise.

135. With the sanction of a resolution in the general meeting, any dividend may be paid wholly or in part by the distribution of specific assets and in particular of paid-up shares or debentures of any other company or in any one or more of such ways. The directors may fix the value for distribution of such specific assets or any part thereof and may determine that cash payments shall be made to any members upon the footing of the value so fixed, in order to adjust the rights of all members, and may vest any such specific assets in trust for the members entitled to the dividend as may seem expedient to the directors.

136. The directors may, before recommending any dividend, preferential or otherwise, set aside out of the profits of the company such sums as they think proper as a reserve or reserves which shall, at the discretion of the directors, be applicable for meeting contingencies, or for equalizing dividends, or for any other purpose to which the profits of the company may be properly applied, and pending such application may, at the like discretion, either be employed in the business of the company or be invested in such investments (other than shares of the company) as the directors may, subject to the provisions of the ordinance, from time to time think fit.

137. The directors may carry forward any profits which they may think prudent not to distribute, without setting them aside as a reserve.

138. Any general meeting may resolve that any moneys, investments, or other assets forming part of the undivided profits of the company standing to the credit of any reserve or other fund or in the hands of the company and available for dividend (or representing premium received on the issue of shares and standing to the credit of the shares premium account) be capitalized and distributed amongst such of the shareholders as would be entitled to receive the same if distributed by way of dividend and in the same proportions on the footing that they become entitled hereto as capital and that all or any part of such capitalized fund be applied on behalf of such shareholders in paying up in full, any unissued shares, debentures or debenture-stock of the company which shall be distributed accordingly and that such distribution of payment shall be accepted by such shareholders in full satisfaction of their interest in the said capitalized sum.

139. A transfer of shares shall not pass the right to any dividend declared thereon before the registration of the transfer.

140. If several persons are registered as joint holders of any share, any one of them may give effectual receipt for any dividend payable on the share.

141. Notice of any dividend that may have been declared shall be given in the manner hereinafter mentioned to the persons entitled to share therein.

142. The dividend shall be paid within the period laid down in section 251.

143. All dividends unclaimed for one year after having been declared may be invested or otherwise made use of by the directors for the benefit of the company until claimed and all dividends unclaimed for three years after having been declared may be forfeited by the directors for the benefit of the company, but the directors may annul the forfeiture wherever they may think proper.

## VII. AUDIT

144. Auditors shall be appointed and their duties regulated in accordance with sections 252 to 255 of the Ordinance or any statutory modification thereof for the time being in force.

## VIII. SEAL

145. The directors shall provide a common seal of the company which shall not be affixed to any instrument except by the authority of a resolution of the board or by a committee of directors authorised in that behalf by the directors, and two (2) directors, or one (1) director and the secretary of the company, shall sign every instrument to which the common seal is affixed.

146. The directors may provide for the use in any territory, district or place not situated in Pakistan, of an official seal which shall be a facsimile of the common seal of the company, with the addition on its face of the name of every territory, district or place where it is to be used. The official seal shall not be affixed to any instrument except by the authority of a resolution of the board or by a committee of directors authorised in that behalf by the directors, and two (2) directors, or one (1) director and the secretary of the company, or such other person as the directors may appoint for the purpose, shall sign every instrument to which the official seal is affixed. The provisions of section 213 shall apply to the use of the official seal.

## IX. NOTICES

147. Notice shall be given by the company to members and auditors of the company and other persons entitled to receive notice in accordance with section 50 and will include electronic form as may apply to the manner in which notices are to be issued, served and/or received by the company.

## X. AMALGAMATION, DIVISION AND RECONSTRUCTION

148. Subject to and in accordance with the provisions of section 287, the company may reconstruct, amalgamate into an other company or divide into two (2) or more companies in the process of which the whole or any part of the undertaking, property or liabilities of the company or any other company, may be transferred to any other company or the company, respectively, as the case may be. Provided that any sale of the undertaking of the company, the directors, or the liquidator on a winding up, may, if authorised by a special resolution, accept fully paid shares, debentures or securities of any other company, whether incorporated in Pakistan or not, either then existing or to be formed, for the purchase in whole or in part of the property of the company, and the directors (if the profits of the company permit) or the liquidator (in a winding up) may distribute such shares, or securities, or any other property of the company amongst the members without realisation, or vest the same in trustees for them, and any special resolution may provide for the distribution or appropriation of the cash, shares or other securities, benefits or property, otherwise than in accordance with the strict legal rights of the members or contributories of the company, and for valuation of any such securities or property at such price in such manner as the meeting may approve, and all holders of shares shall be bound to accept and shall be bound by any valuation or distribution so authorised, and waive all rights in relation thereto, save only in case the company is proposed to be or is in the course of being wound up, such statutory rights

(if any) under section 367 of the Ordinance as are incapable of being varied or excluded by these articles.

## **XI. SECRECY**

149. Every director, manager, adviser, auditor, trustee, member of a committee, officer, servant, agent, accountant or other person employed in the business of the company shall, if so required by the directors before entering upon his duties, sign a declaration pledging himself to observe a strict secrecy respecting all transactions of the company with its customers and the state of accounts with individuals and in matters relating thereto and shall by such declaration pledge himself not to reveal any of the matters which may come to his knowledge in the discharge of his duties except when required to do so by the directors or by any meeting or by any Court of law and except so far as may be necessary in order to comply with any of the provisions in these articles contained.

150. No member or other person (not being a director) shall be entitled to enter upon the property of the company or to inspect or examine the company's premises or properties of the company without the permission of the directors for the time being or, subject to the provisions of article 122, to require discovery of or any information respecting any detail of the company's trading or any matter which is or may be in the nature of a trade secret, mystery of trade, or secret process or of any matter whatsoever which may relate to the conduct of the business of the company and which in the opinion of the directors it will be inexpedient in the interest of the members of the company to communicate.

## **XII. ARBITRATION**

151. Whenever a difference arises between the company on the one hand and any of the members, their executors, administrators, or assignees on the other hand touching the true intent or construction or the incident or consequences of these presents, or of the status of enactment's of the legislature, or touching anything then or thereafter done, executed, omitted or suffered in pursuance of these presents or of the status of enactment's touching any breach or alleged breach or otherwise relating to the premises or to these presents, or to the status or to any of the affairs or officers of the company, the company by written agreement refer to arbitration in accordance with the Arbitration Act 1940 (X of 1940) and every such difference shall be referred to the decision of an arbitrator to be appointed by the parties in difference or if they cannot agree upon a single arbitrator, to the decision of two arbitrators, one appointed by such party, or in the event of disagreement of the arbitrators, to that of an umpire appointed by arbitrators themselves. The provisions of Arbitration Act 1940 (X of 1940) shall apply to all arbitrations between the company and persons having such difference.

152. If either party to the difference makes default in appointing the arbitrator for fifteen days after the other party has given to him notice to appoint the same, such other party may appoint an arbitrator to act in the place of the arbitrators of the defaulting party.

153. The costs of, or incidental to any such reference and award shall be in the discretion of the arbitrator/arbitrators or umpire as the case may be who may determine the amount thereof and may award by whom, and to whom, and in what manner the same shall be borne and paid.

## **XIII. WINDING UP**

154. If the company shall be wound up and the assets available for distribution among the members, subject to the rights attached to any preference share capital, as such shall be insufficient to repay the whole of the paid-up capital, such assets shall be distributed so that as nearly as may be the losses

shall be borne by the members in proportion to the capital paid up on the shares held by them respectively. And if in a winding up the assets available for distribution among the members shall be more than sufficient to repay the whole of the capital paid up at the commencement of the winding up, the excess shall be distributed amongst the members in proportion to the capital at the commencement of the winding up, paid up on the shares held by them respectively. But this article is to be without prejudice to the rights of the holders of shares issued upon special terms and conditions.

155. If the company shall be wound, whether voluntarily or otherwise, the liquidator may with the sanction of a special resolution divide among the members in specie or kind any part of the assets of the company, and may with the like sanction vest any part of the assets of the company in trustees upon such trusts for the benefit of the members or any of them as the liquidator with the like sanction shall think fit.

#### XIV. INDEMNITY

156. Every director or officer of the company and every person employed by the company as auditor shall be indemnified out of the funds of the company against all liability incurred by him as such director, officer or Auditor in defending any proceedings, whether civil or criminal, in which judgement is given in his favour, or in which he is acquitted, or in connection with any application under section 488 of the Ordinance in which relief is granted to him by the Court.

Certified True Copy

*Sham Jang*

We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a Company in pursuance of these Articles of Association and we respectively agree to take the number of shares in the capital of the company set opposite our respective names:-

Sr. No.	Name & Surname (Present and former in full)	Father's/Husband's Name in full	Nationality	Occupation	Residential Address	No. of ordinary shares taken by each Subscriber	Signature
1	Mr. Abdul Shakoor Khan Passport # 540231987	Mr. Abdul Haleem Khan	British	Business Executive	50-A, Chalk Farm Road, Camden, London, UK	10	
2	Mr. Muhammad Aslam Gehlanvi NIC # 35202-8147978-7	Mr. Khuda Bakhsh	Pakistani	Business Executive	House No. 11-G-2, Sector G II, Wapda Town, Lahore	10	
3	Mr. Omar Farooq NIC # 35202-7739583-9	Mr. Muhammad Hafeez	Pakistani	Business Executive	House No. 12-B, Sreet No. 29, Barni Road, Garhe Shaho, Lahore	10	
Dated this		day of			Total Shares Taken	30	

Witness to the above Signatures:

Full Name: Syed Qalander Ali Gilani NIC # 35302-7082659-7

Father's/Husband's Full Name: S/O Syed Zulfiqar Ali Gilani

Signature:

Nationality: Pakistani

Occupation: Service

Full Address: 10-B, Saint Mary Park, Main Boulevard,  
Gulberg-III, Lahore

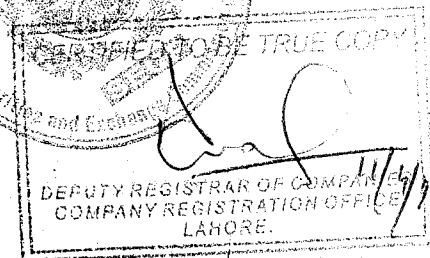
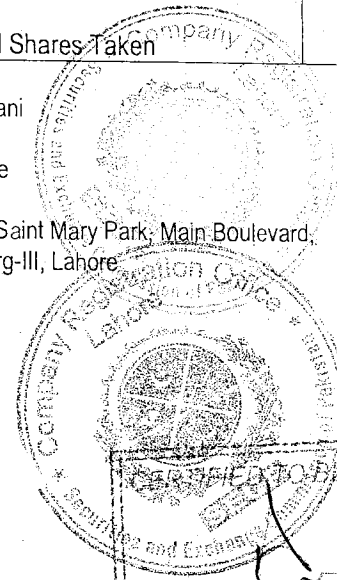
Certified True Copy

*[Handwritten Signature]*

2.33

COMPANY REGISTRATION NUMBER  
NO OF DOCUMENT  
OF THE COMPANY  
DESCRIPTION OF THE DOCUMENT  
INCLUDING ITS ENCLOSURES  
DATE ON WHICH THE DOCUMENT  
REGISTERED FILED OR RECORDED

DEPUTY REGISTRAR OF COMPANIES  
LAHORE REGION



THIRD SCHEDULE  
(See section 156)

## FORM A - ANNUAL RETURN OF COMPANY HAVING SHARE CAPITAL



1. Registration No. 0076093  
 2. Name of the Company ALLIANCE SUGAR MILLS (PVT.) LIMITED  
 3. Form A made upto (Day/Month/Year) 31/01/2014  
 4. Date of AGM (Day/Month/Year) 31/01/2014

## PART - A

5. Registered Office Address

50/3, Tufail Road, Cantt Lahore Punjab

6. Email Address

racolhr@racopk.com

7. Office Tel. No.

35718137

8. Office Fax No.

9. Nature of Business

-SUGAR AND ALLIED

10. Authorized Share Capital

Type of Shares	No. of Shares	Amount	Face Value
Ordinary Shares		1,000,000,000.00	

11. Paid up Share Capital

Type of Shares	No. of Shares	Amount	Issue Price
Ordinary Shares		769,000,300.00	

12. Amount of indebtedness on the date upto which form A is made in respect of all Mortgages/Charges

0.00

13. Particulars of the holding company

Name

Registration No.

% Shares Held

14. Chief Executive

Name

TARIQ JAVED

NIC

42201-9242550-7

Address

D-2, KACHI MEMDN SOCIETY, BAHADARABAD, KARACHI

Next Page

## Name \_\_\_\_\_

NIC

Address

\_\_\_\_\_

## Name \_\_\_\_\_

OMAR FAROOQ	NIC	35202-7739583-9
-------------	-----	-----------------

**Address**

H. NO. 12-B, STREET NO. 29, BARNI ROAD, GARHE SHAHO, LAHORE

## Name \_\_\_\_\_

\_\_\_\_\_

**Address**

\_\_\_\_\_

## Name

RIAZ AHMAD AND COMPANY

Address

10-B, SAINT MARY PARK, MAIN BOULEVARD, GULBERG-III, LAHORE

## Name of Director

Address

Nationality

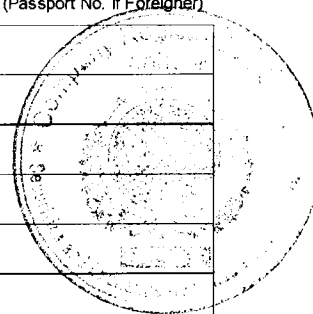
NIC (Passport No. if Foreigner)

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Next Page



**19. List of Directors on the date of Form-A**

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Previous Page

**Next Page**

**20. List of members & debenture holders on the date upto which this Form A is made**

35202-773583-9  
42281-9242550-7  
35202-2652988-1  
35202-281217E  
35202-2835051-2

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**Next Page**

## **ALLIANCE SUGAR MILLS (PVT.) LIMITED**

*3-B, Nisar Road, Nisar Colony,  
Lahore Cantt.*

### **Note on Feasibility**

Alliance Sugar Mills (Private) Limited is opting Suo-Moto proceedings for development of upfront tariff for its 30MW new Power Project. The Feasibility study report is not required in the case where Power Producer opt for upfront tariff and accordingly the feasibility study is not being submitted.

A handwritten signature in black ink is written over a circular embossed stamp. The stamp contains the text "ALLIANCE SUGAR MILLS (PVT.) LIMITED" around its perimeter. The signature appears to be "Ahmed Ali" or similar, written in a cursive style.

**Alliance Sugar Mills (Pvt.) Limited**  
**Prospectus**

**BRIEF INTRODUCTION OF THE APPLICANT**

ASML is a private limited company located at Rasheedabad in district Ghotki, Sindh which owns and operates 10,000 TCD sugar mill with 13.5MW power house. The Company is engaged in the manufacturing and sale of sugar (including by-products such as molasses). The Company is an existing license holder and has an installed capacity of 13.5 MW which it uses to meet its captive requirements and also intends to sell surplus electricity up to 3 MW to SEPCO from the upcoming season 2014-15.

The Company is in the process of setting up a 67 Bar 30MW bagasse fired cogeneration power plant under the Framework for Power Cogeneration 2013 for Bagasse / Biomass to include bagasse/biomass under the ambit of the Renewable Energy Policy, 2006.

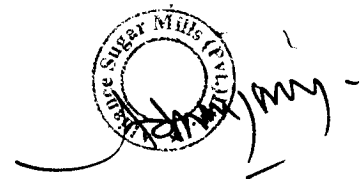
**SALIENT FEATURES OF THE FACILITY FOR WHICH LICENSE IS SOUGHT**

The Facility shall employ 2 X 15 MW Steam Turbo Generators (STGs) for power generation which shall be dispatched to the National Grid through a 132 KV Switchyard. Electricity from the Facility shall be connected to the National Grid by looping in-out of the single circuit of the Dherki to Guddu 132KV line.

Bagasse which is a by-product of the sugar making process shall be fired in a high (67 Bar[a]) pressure boiler to produce steam which shall be injected to 2 X 15 MW STGs to produce electricity. Surplus electricity of 19MW shall be dispatched to the National Grid.

1	Plant location	On Main K-L-P Road (National Highway) at Rasheedabad, Tehsil Ubauro, District Ghotki, Province of Sindh
2	Technology	Conventional steam power cycle
3	Installed capacity	30,000 KW
4	Plant detail i. Steam Turbo generators ii. Boiler	2 X15 MW Steam Turbo Generators (STGs) 1X140 TPH 67 Bar(a) Dumping grate bagasse fired boiler

The company shall opt for the upfront tariff for New Bagasse Based Co-Generation projects determined by NEPRA in May 2013 under the Framework for Power Cogeneration 2013 for Bagasse / Biomass to include bagasse/biomass under the ambit of the Renewable Energy Policy, 2006.



## **PROPOSED INVESTMENT**

The proposed investment is expected to be approximately PKR 2,980 Million and shall be made through a mixture of Debt (80%) and Equity (20%).

## **SOCIAL AND ENVIRONMENTAL IMPACT OF THE PROPOSED FACILITY**

Bagasse is a by-product produced during the sugar manufacturing process and is an environmental friendly biomass fuel and helps reduce emission of Green House Gasses. Governments across the Globe including Pakistan and neighboring India have incentivized biomass based generation to reduce the effects of Global Warming and to promote the use of indigenous energy sources for electricity generation.

Bagasse based generation by sugar mills like ASML provide the following benefits:

- Import substitution by replacing costly furnace oil, saving precious foreign exchange. It is estimated that approximately 3,000 MW can be generated by sugar mills located in various parts of the country.
- Contributing towards reducing the electricity shortfall during the low generation months as sugar mills operate in the winter months i.e. non-gas and non-hydel months
- Lower tariff. Since bagasse based generation offers direct replacement for furnace oil/diesel based generation it offers a clear price advantage. Bagasse based tariff is 10.41 US Cent/KWh as against tariff in excess of 18 US Cents/KWh for furnace oil based generation.
- Environment friendly nature of the fuel, helps in reducing Green House Gases and Carbon Footprints
- The Project will use a high pressure boiler of 140TPH and 2 X 15 MW steam turbines to generate electricity for sale to the national grid. The higher steam parameters shall result in 300% more energy dispatch from the same fuel stock.
- Bagasse based cogeneration units offered by sugar mills can be set up in 16 months against the normal period of approximately 5 years for an IPP. The fast track implementation is highly beneficial at a time when the country faces severe energy shortage.
- Reducing distribution costs. Sugar Mills are located in rural areas (away from traditional load centers) and are vastly spread and, therefore, are ideal vehicles for cheap distribution of power to rural areas and non-traditional load centers

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**Plant Details\***

**General Information**

1	Name of Applicant	Alliance Sugar Mills (Pvt.) Limited
2	Registered/Business Office	3-B, Nisar Road, Nisar Colony, Lahore Cantt
3	Plant Location	Rasheedabad, Tehsil Ubauro, District Ghotki, Sindh
4	Type of Generation Facility	Bagasse Fired Thermal Power Station

**Plant Configuration**

1	Plant Size Installed Capacity (Gross ISO)	30.00 MW	
2	Type of Technology	Steam Turbine	
3	Number of Units/Size (MW)	Unit 1	Unit 2
		15.00 MW	15.00 MW
4	Unit Make & Model	Unit 1	Unit 2
		Hangzhou Steam Turbine Power Company Limited	Hangzhou Steam Turbine Power Company Limited
5	Commissioning/Commercial Operation Date	Unit 1	Unit 2
		December 31, 2015	December 31, 2015
6	Expected Life of the Units of Facility from Commercial Operation/Commissioning Date	Unit 1	Unit 2
		30 years	30 years
7	Expected Remaining useful Life of the Units of the Facility	Unit 1	Unit 2
		30 years	30 years



**Fuel/Raw Material Details**

1	Primary Fuel	Bagasse		
2	Alternate Fuel	Furnace Oil (FO)		
3	Fuel Source (Imported/Indigenous)	Primary Fuel	Alternate Fuel	
		Indigenous	Imported/Indigenous	
4	Fuel Supplier	Primary Fuel	Alternate Fuel	
		Alliance Sugar Mills (Pvt.) Limited	Shell Pakistan Ltd/PSO	
5	Supply Arrangement	Primary Fuel	Alternate Fuel	
		Through Conveyor Belts / Loading Trucks / Tractor / Trolleys etc	Through Oil Tankers	
6	Sugarcane Crushing Capacity	10000 Tons/Day		
7	Bagasse Generation Capacity	3000 Tons/Day		
8	Bagasse Storage Capacity	150000 Tons Bagasse		
9	No. Of Storage Tanks	Bagasse	FO	
		Bulk Storage	2	
10	Storage Capacity of Each Tank (Tons)	Bagasse	FO	
		Bulk Storage	Tank-1	Tank-2
			500	40
11	Gross Storage (Tons)	Bagasse	FO	
		Bulk Storage	540	

**Emission Values**

1	SO <sub>x</sub>	Bagasse	FO
		0 %	To be provided later
2	NO <sub>x</sub>	Bagasse	FO
		2 ~ 5 %	To be provided later
3	CO <sub>2</sub>	Bagasse	FO
		12 % ~ 13 %	To be provided later
4	CO	Bagasse	FO
		2 % ~ 3 %	To be provided later
5	PM <sub>10</sub>	Bagasse	FO
		Nil	To be provided later





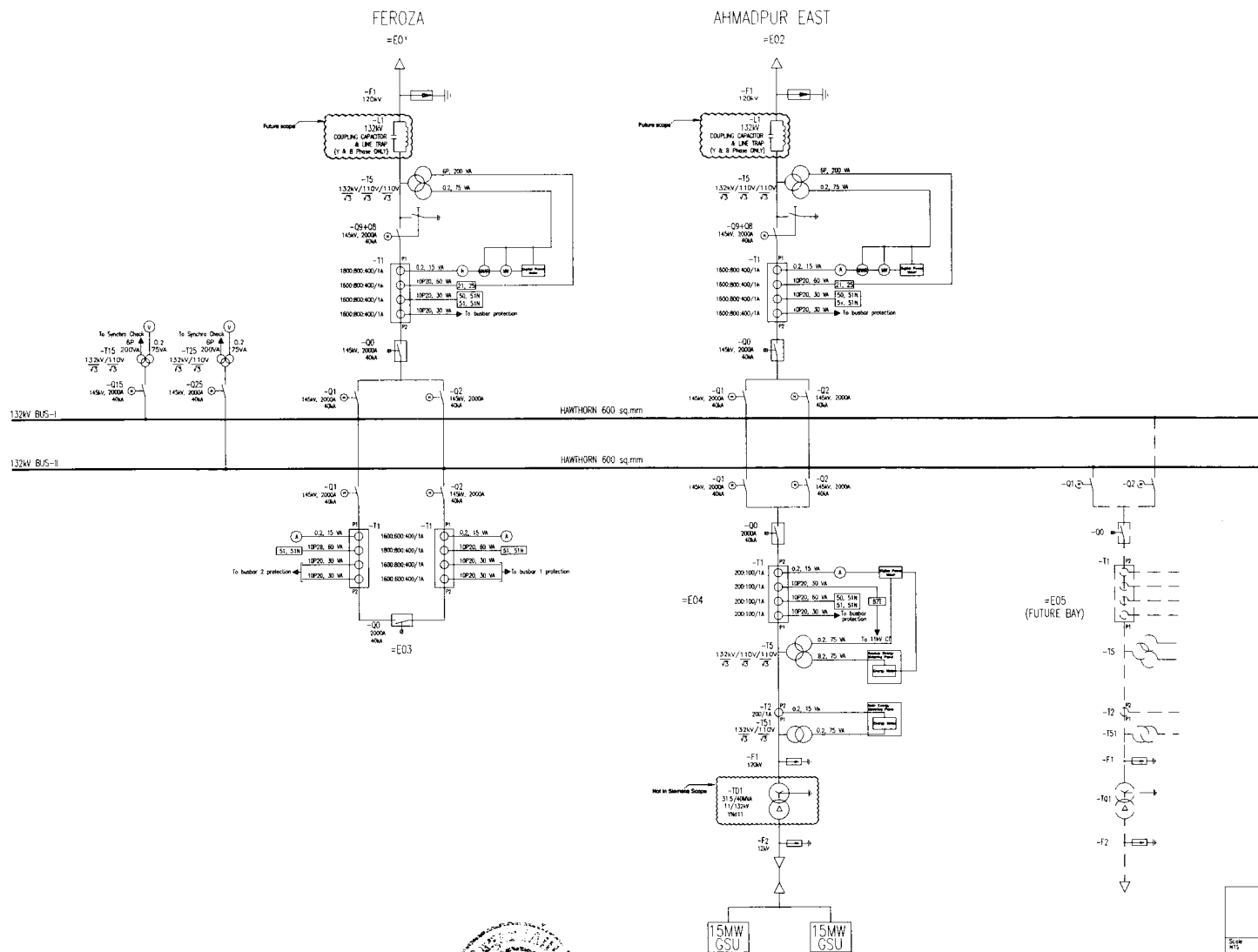
**Cooling System**

1	Cooling Water Source/Cycle	Condensate water of Ground Water Turbine installed at plant site / Closed Loop
---	----------------------------	--

**Plant Characteristics**


		Unit 1	Unit 2
1	Generation Voltage	11 KV	11 KV
2	Frequency	50 Hz	50 Hz
3	Power Factor	0.8 Lagging - 0.9 Leading	0.8 Lagging - 0.9 Leading
4	Automatic Generation Control(AGC)	Yes	Yes
5	Ramping Rate	5 KW / Sec	4 KW / Sec
6	Time required to synchronizing to Grid and Loading the Complex to full load.	5 Hrs for cold start / 30 seconds for synchronizing to Grid	5Hrs for cold start / 30 seconds for synchronizing to Grid

*Adhanying*

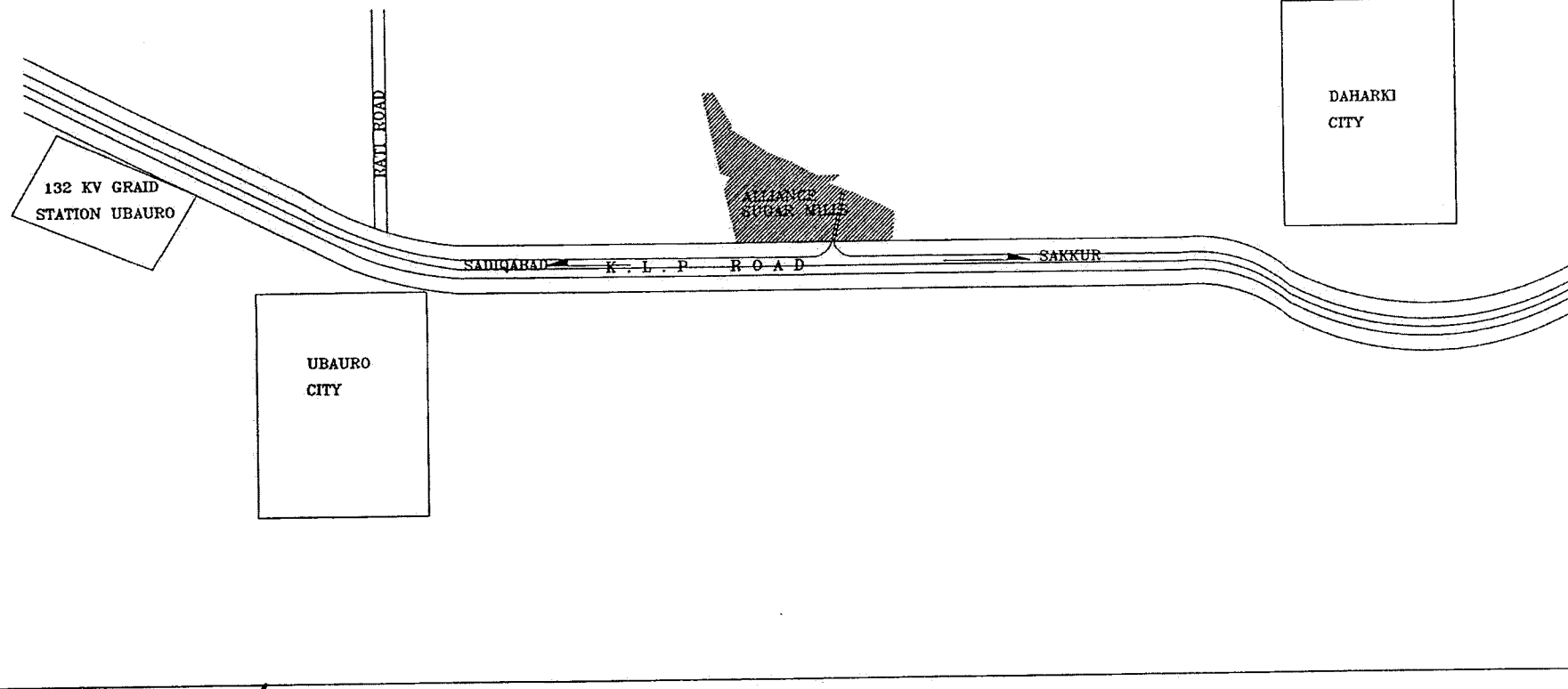


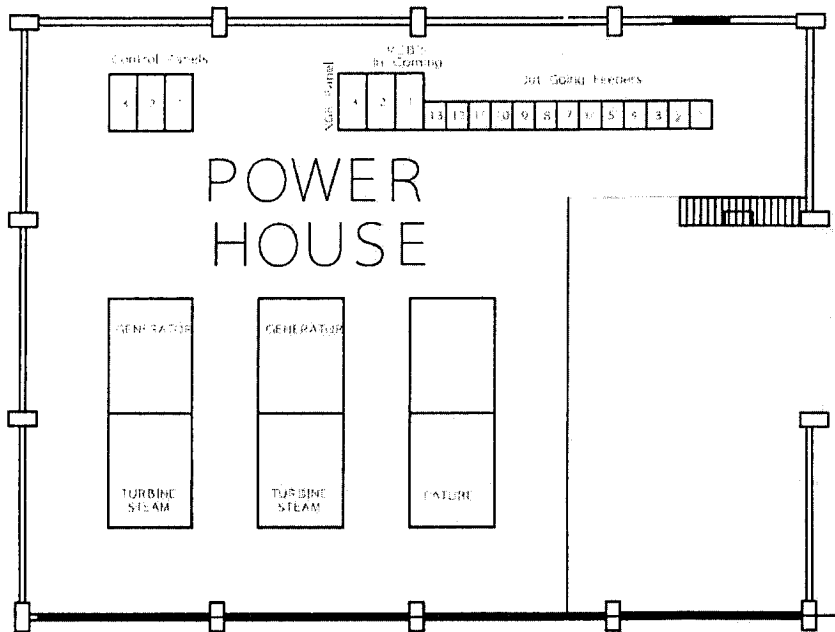
LEGEND

Symbol	Designation	Device
	-00	SFS Circuit Breaker
	-01, -02, -09 -015, -025	Isolator
	-08	Earthing Switch
	-11, -12	Current Transformer
	-15, -115, -125	Voltage Transformer
	-151	Measuring Voltage Transformer
	-F1, -F2	Surge Arrester
	-L1	Line Trap + Coupling Capacitor
	-701	Power Transformer
		Wattmeter
		Ammeter
		Voltmeter
		Digital Power Meter
	87, 89	Distance Protection with Synchro Check
	87T	3 Phase Transformer Differential Protection
	50, 50N 87, 87N	3 Phase O/E & E/F
	15 MW GCU	15 MW Generator
		Future scope

						Alliance Sugar Mills (Pvt) Ltd	
Scale 1" = 1'							
1/1 132 KV Switchyard at Alliance Sugar Mills (Pvt) Ltd at Rameshtad, Udaipur, District Chhota.							
				Date: _____ Drawn: _____ Check: _____ Rev: _____		Single Line Diagram	
No.	Remarks	Date	Name				

# PLANT LOCATION

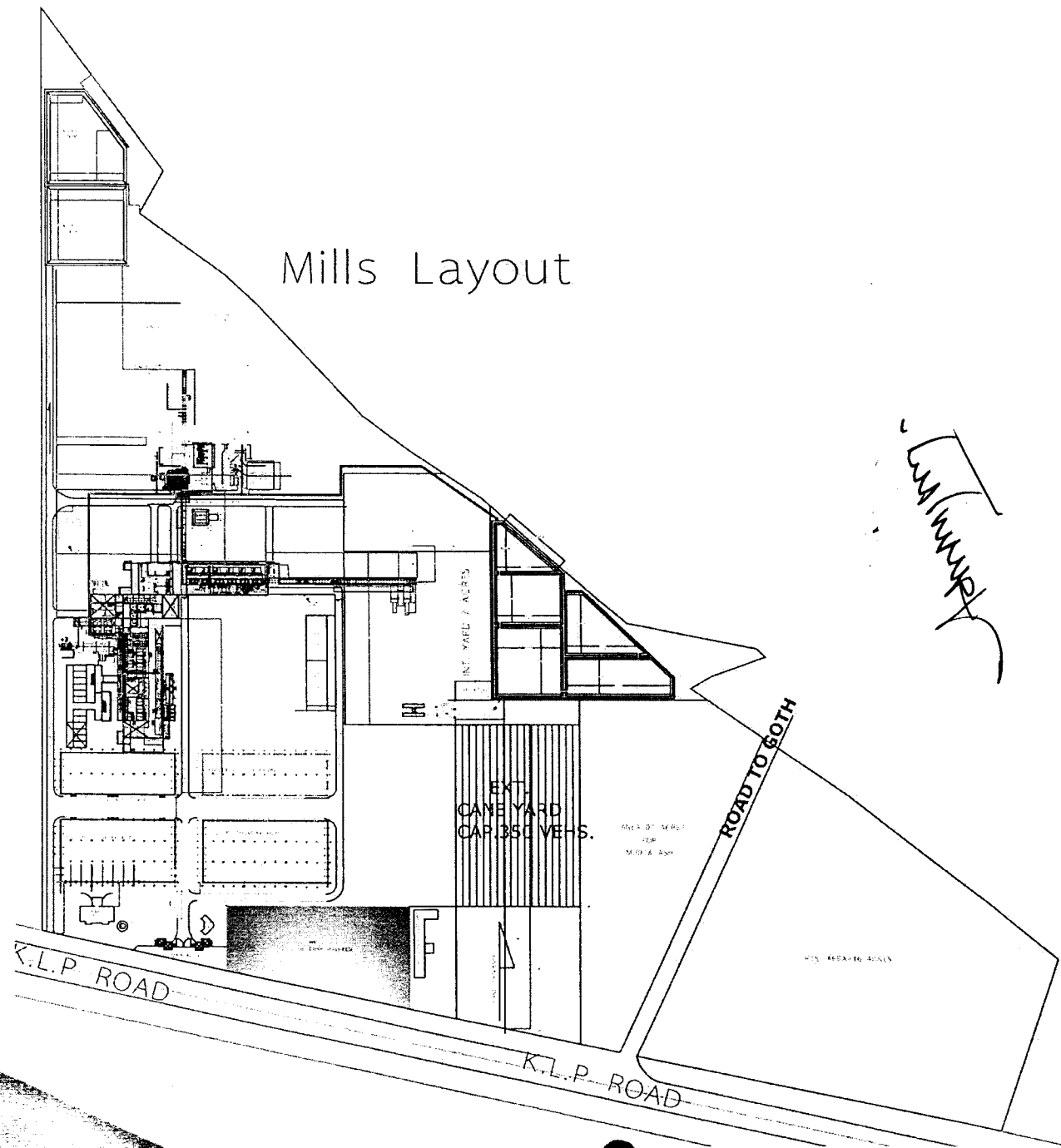




ROAD



# Mills Layout



# ALLIANCE SUGAR MILLS (PVT.) LIMITED

3-B, Nisar Road, Nisar Colony,  
Lahore Cantt.

## Infrastructure

The Facility is located on the Main K-L-P Road and is therefore easily accessible. The nearest town is Ubauro City which has a population in excess of quarter a million people and is approximately 8 km from the Facility.

The Nearest Grid Station is Dherki Grid Station which is located at an approximate distance of 8 km from the Facility.

The Company has residential arrangements for housing more than 50 employees. These arrangements are currently being enhanced.

The Facility is approximately 50 km from Sadiqabad City and 110 Km from Sukkur City.

The nearest railway station is Dherki station which is at the distance of around 10-12 km from the Facility.

Rahim Yar khan International Airport and Sukkur Airports are approximately 100-120 km from the Facility.

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## ALLIANCE SUGAR MILLS (PVT.) LIMITED

3-B, Nisar Road, Nisar Colony,

Lohare Cantt

### PROJECT SCHEDULE

	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
DUE DILLIGENCE																	
ISSUANCE OF ORDERS																	
APPLICATION FOR LOI TO AEDB																	
ISSUANCE OF LOI																	
COMMENCEMENT OF CONSTRUCTION & ERECTION																	
APPROVAL OF INTER CONNECTIVITY																	
APPLICATION FOR GENERATION LICENSE																	
FILING OF ACCEPTANCE OF UP FRONT TARIFF																	
SIGNING OF EPA & IA																	
LETTER OF SUPPORT FROM AEDB																	
FINANCIAL CLOSE																	
COMMERCIAL OPERATIONS DATE ("COD")																	




# ALLIANCE SUGAR MILLS (PVT.) LIMITED

3-B, Nisar Road, Nisar Colony,

Lahore Cantt.

## Safety Plan

To provide a safe working environment, the company shall follow a well devised safety plan.

Key features of safety plan are given below:

### ○ Awareness

Staff working at the facility shall be given information to help them to identify the risks and take necessary measures of safety and protection during their working. To create awareness, personnel at the facility shall be briefed through handouts, in-house seminars, mock safety drills. Particular areas of interest shall be:

- Moral Obligation
- Hazard Recognition
- Importance of Personnel Protective Equipment (PPEs)
- Accident Prevention
- Importance of House Keeping
- Machine Guarding
- Fire Prevention
- Fire Protection
- Fire Fighting

### ○ Use of Safety Gear and Equipment

Use of PPEs like safety helmet, safety shoes, uniform, dust mask, ear plugs, ear muff, leather apron, leather sleeves, face shield, gloves for their safety shall be issued to all personnel.

### ○ Assurance of use of Safety gear

The staff working at the facility will be provided all necessary safety gears and protection equipment and its use shall be mandatory during work.

### ○ Emergency Alarms

Automatic Emergency Alarms shall be installed along with fire suppression system at all fire hazardous locations of the plant site especially at transformers & turbine lube oil systems etc.





○ **Emergency Numbers**

Emergency call numbers shall prominently be displayed in bold at prominent places in the facility.

○ **Emergency Shutdown**

The Emergency response Team shall be responsible to ensure immediate shutdown of the operational systems and equipments if required in the Emergency.

○ **First Aid Facilities**

The availability of first aid facilities and necessary staff to provide urgent and immediate first aid facilities will be ensured at the facility.

○ **Ambulances**

Availability of Ambulance at the facility shall be ensured for causality evacuation to the hospitals.

○ **Mock Fire Drills**

To keep fire brigade staff in good practice, mock fire drill will be executed by creating mock emergency situations.

○ **Fire Fighting System**

The fire protection system will be provided for early detection, alarm, containment and suppression of fire. A comprehensive fire protection system has been planned to meet the above objective. A multitude system shall be provided to combat various types of fire in different areas of the plant and all such systems for various areas shall form a part of a centralized protection system for the entire plant.

- The complete fire protection system shall comprise of following;
- Stand pipe & hose system for building and structure (internal)
- Yard main, hydrants and monitors of plant site (external)
- Fire alarm and signaling
- Portable fire extinguishers
- Water spray fixed systems

The system shall be designed generally as per NFPA (National Fire Protection Association) standards.

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# ALLIANCE SUGAR MILLS (PVT.) LIMITED

3-B, Nisar Road, Nisar Colony,  
Lahore Cantt.

## **EMERGENCY PLAN**

A comprehensive emergency plan would be implemented to meet unexpected situation to ensure zero injury, damage or loss of any life/property.

Key features of the emergency plan are as follows;

- **Emergency Escapes/Evacuation Plan**

A comprehensive evacuation plan will be prepared and emergency escape procedure and route maps will be displayed at prominent places in the facility. All personnel at the facility shall be made aware of Emergency escape routes and procedures for a quick and safe escape.

- **Awareness of Different Types of Emergencies**

All personnel at the facility shall be educated on how to react to each type of emergency. All staff working at the facility will be given detailed briefing regarding different types of emergencies and their response so that they would be able to identify emergency situations.

- **Training to React to an Emergency Alert Alarm**

All personnel at the facility shall be trained to react to each emergency to take necessary measures of safety and protection at the earliest.

- **Emergency Equipment**

In addition to emergency combatants training, emergency equipment like fire extinguishers and fire hydrants will be provided at the facility to tackle with different types of Emergency.

- **Use of Safety Gears and Equipment**

The staff working at the facility will be given with proper information, guidance and training about the use the safety gears and equipments.

- **Emergency Alarm**

Easy access to emergency alarms shall be provided to raise the alarm in case of any type of Emergency.

- **Emergency Numbers**

Emergency call numbers shall prominently be displayed at prominent places in the facility.

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- **Emergency Response Team**

A well equipped and specialized team will be formed which will be responsible to take all necessary measures and decisions to deal with the emergency and provide relief, support and first aid to the effected staff. The emergency response team will also be responsible for the evacuation of personnel and material from the premises.

- **Emergency Shutdown**

The Emergency response Team shall be responsible to ensure immediate shutdown of the operational systems and equipments if required in the Emergency.

- **Assembly Areas and Muster Points.**

Designated assembly areas / Muster points shall be identified and all personnel working at the facility will be educated to muster at the designated assembly area / muster points in the event of an evacuation for head count.

- **Ambulances**

Availability of Ambulance at the facility shall be ensured for causality evacuation to the hospitals.

A handwritten signature in black ink is written over a circular stamp. The signature is cursive and appears to read 'Adnan J. Singh'. The stamp is circular with a dotted border and contains some text that is mostly illegible due to the signature and the quality of the scan.

# ALLIANCE SUGAR MILLS (PVT.) LIMITED

3-B, Nisar Road, Nisar Colony,

Lahore Cantt.

## Training and Development

Training and Development programmes for our Engineers and Supervisory staff arranged. Engineers and Supervisory staff who will successfully complete the Training program can:

1. Understand the principles, components and measuring instruments associated with AC and DC electricity.
2. Understand the operation and control of the common motors and generators found in utilities.
3. Differentiate between distribution and power transformers by construction and application.
4. Discuss the application of protective relays to protect motors, generators, buses and transformers.
5. Understand the purpose and operation of the various equipment used in electric power generating stations.
6. Describe the functions of the equipment used in power distribution stations.
7. Explain the principles of operation of the various types of steam generators.
8. Describe the methods used to regulate the voltage of distribution systems.
9. Explain the principles of operation of the various types of steam generators.
10. Describe the methods used to regulate the voltage of distribution systems.
11. Understand H.P Valve Operation
12. Understand H.P line and routing
13. Understand DCS process operation
14. Understand High Tension turbines Operation
15. Understand H.P Boiler starts up and Shut Down
16. Understand Turbine start up and operations
17. Understand High Voltage Equipments
18. Understand Safety for smooth operations

We shall also arrange technical workshops/seminars to address all Core Operations. These training can be in-house from a qualified Instructors and experienced professionals or can be outsource to a well developed and professionally competent firms.

### Benefits of this training and development programme

#### a) Reduce Human Errors

Well trained personnel make fewer mistakes. Possible malfunctions and defective components can be recognized earlier and preventive maintenance measures can be put into place.

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**b) Increase Availability**

Power station staff that is able to perform quickly and accurately can help to prevent or minimize forced outage times and thus increase the plant availability.

**c) Health and Safety**

The awareness of possible dangers in the plant and the safe operation of any equipment is essential. Training ensures a full understanding of the plant and its systems functionality and proper handling in order to prevent any hazards and threats.

**d) Motivated Personnel**

Staff that has been trained well has a better understanding of the requirements to be met every day. Higher skill levels and know-how lead to better performances on the job and communication within the team. This creates a very professional environment and thus a highly motivated and satisfied work force.

**e) Long Term Payback**

A well defined training concept with continuous skill development programs and clear learning targets will guarantee satisfying performances of your personnel. This long term approach will ensure the successful productivity of your power station.

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## INTERCONNECTION STUDY

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*For*  
**30 MW ALLIANCE SUGAR MILLS LTD.  
POWER PLANT  
FOR SUPPLY OF 19 MW SPILLOVER TO THE  
NATIONAL GRID**



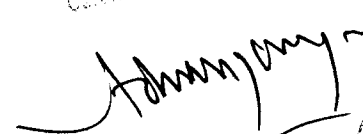

*Final Draft Report  
(March 2014)*

**POWER PLANNERS INTERNATIONAL**

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[www.powerplannersint.com](http://www.powerplannersint.com)

*Controlled Copy*  
  


## **Executive Summary**

- ❖ The Final Report of 30 MW Alliance Sugar Mills Ltd. Power Plant for the Supply of 19 MW spillover to the national grid is submitted herewith.
- ❖ Alliance Sugar Mills Ltd. is in the process of establishing a new 2 x 15 MW bagasse based cogen plant employing high pressure boiler in its sugar mill with the aim of exporting 19 MW power to the grid during the crushing season and little thereafter. It is for this purpose that the grid interconnection study has been carried out.
- ❖ The study objective, approach and methodology have been described and the plant's data received from the Client is validated.
- ❖ The system data of NTDC has been used as per permission granted by NTDC vide their letter GMPP/CEMP/TRP-333/Co-gen/ASML/948-52 dated 07-03-2014.
- ❖ The nearest interconnection facilities is the 132 kV substation of Dharki lies at about 7 km from the site of Alliance Sugar Mills Ltd.
- ❖ Due to the location of Alliance Sugar Mills, the most feasible interconnection scheme would be double circuit with Dharki shown in Sketch-2 in Appendix-A. The distance of the plant from Dharki is about 7 km. The conductor used will be 132 kV Lynx conductor.
- ❖ The proposed scheme will require two breaker bays of 132 kV at Alliance Sugar - Mills PP to connect with the 132 kV double circuits each from Dharki.
- ❖ In view of planned COD of the Alliance Sugar-Mills Power Plant in December 2015, the above proposed interconnection scheme has been tested for steady state conditions through detailed load flow studies for the peak conditions of January 2016 for maximum thermal power dispatches in the grid during winter which is the crushing season.
- ❖ Steady state analysis by load flow reveals that proposed scheme is adequate to export 19 MW spillover of the plant under normal and contingency conditions.
- ❖ Also the case for the year 2020 has been studied to see the performance of the proposed interconnection scheme in an extended term scenario. The system



conditions of normal and N-1 contingency have been studied for all scenarios to meet the reliability criteria.

- ❖ The short circuit analysis has been carried out to calculate maximum fault levels at Alliance Sugar Mills PP and the substations of 132kV in its vicinity. We find that the fault currents for the proposed scheme are much less than the rated short circuit capacities of switchgear installed at these substations. There are no violations of exceeding the rating of the equipment due to contribution of fault current from Alliance Sugar Mills PP.
- ❖ The maximum short circuit levels of Alliance Sugar Mills PP 132 kV have been evaluated for the peak case of 2016 to evaluate the maximum fault currents on Alliance Sugar Mills PP and the 132 kV Substations in its vicinity in the future scenario. The maximum short circuit level of the Alliance-PP 132 kV is 8.52 kA and 7.89 kA for 3-phase and 1-phase faults respectively in the year 2016. Therefore industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 132 kV switchyard of Alliance-PP as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity. For 11 kV the maximum short circuit levels of Alliance-Mills PP are 25.53 kA and 29.70 kA for 3-phase and 1-phase faults respectively. Therefore the industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 11 kV switchyard of Alliance-PP taking care of any future generation additions and system reinforcements in its electrical vicinity.
- ❖ The dynamic stability analysis of proposed scheme of interconnection has been carried out. The stability check for the worst case of three phase fault right on the 132 kV bus bar of Alliance Mills PP substation followed by the final trip of 132 kV circuits emanating from this substation, has been performed for fault clearing of 5 cycles (100 ms) as understood to be the normal fault clearing time of 132 kV protection system. Also the extreme worst case of stuck breaker (breaker failure) has been studied where the fault clearing time is assumed 9 cycles i.e. 180 ms. In all events, the system is found strong enough to stay stable and recovered with fast





damping. The stability of system for far end faults of 3-phase occurring at Dharki 132 kV bus bar has also been checked. The proposed scheme successfully passed the dynamic stability checks for near and far faults even for the most stringent cases.

- ❖ The proposed scheme of interconnection has been evaluated for the year 2016 and for 2020 to evaluate the future scenario. The proposed interconnection scheme causes no technical constraints or problems and is therefore recommended to be adopted.



## Report Contents

### **1. Introduction**

- 1.1. Background
- 1.2. Objectives
- 1.3. Planning Criteria

### **2. Assumptions of Data**

- 2.1 Alliance - PP Data
- 2.2 Network Data

### **3. Study Approach & Methodology**

- 3.1 Understanding of the Problem
- 3.2 Approach to the Problem

### **4. Development of Scheme of Interconnection**

- 4.1 The Existing and ongoing Network
- 4.2 The Scheme of Interconnection of Alliance Sugar Mill PP

### **5. Detailed Load Flow Studies**

- 5.1. Peak Load Case 2016
  - 5.1.1 Without Alliance Sugar Mills Power Plant
  - 5.1.2 With Alliance Sugar Mills Power Plant
  - 5.1.3 Off-Peak Case With Alliance Sugar Mills Power Plant
- 5.2. Peak Load Case 2020 : Extended Term Scenario
- 5.3 Conclusion of Load Flow Analysis

### **6. Short Circuit Analysis**

- 6.1 Methodology and Assumptions
- 6.2 Fault current calculations without Alliance-PP – Year 2016
- 6.3 Fault current calculations with Alliance-PP interconnected
- 6.4 Conclusion of Short Circuit Analysis

### **7. Dynamic Stability Analysis**

- 7.1 Assumptions & Methodology
  - 7.1.1 Dynamic Models



- 7.1.2 System Conditions
- 7.1.3 Presentation of Results
- 7.1.4 Worst Fault Cases
- 7.2 Dynamic Stability Simulations' Results with Alliance-PP
  - 7.2.1 Fault at 132 kV near Alliance-PP
  - 7.2.2 Fault at 132 kV near Alliance-PP (Stuck Breaker)
  - 7.2.3 Fault at Dharki 132 kV (Far-End Fault)
- 7.3 Conclusion of Dynamic Stability Analysis

## **8. Conclusions**

### **Appendices**

**Appendix –A: Sketches for Chapter-4**

**Appendix –B: Plotted Results of Load Flow for Chapter – 5**

**Appendix –C: Results of Short Circuit Analysis for Chapter – 6**

**Appendix –D: Plotted Results of Stability Analysis for Chapter – 7**



# **1. Introduction**

## **1.1 Background**

Currently Alliance Sugar Mills Ltd. has an installed capacity of 13.5 MW (1x6 MW and 1x7.5 MW) which is used to meet the load demand of Alliance Sugar Mills. Alliance Sugar Mills is in the process of establishing a new 30 MW power plant comprising 2x15 MW units based on bagasse employing high pressure (67 Bars) boiler for sale of 19 MW spill over to NTDC/CPPA at 132 KV during the crushing season and a little thereafter under the Frame work for Power Cogeneration, 2013 (Bagasse) approved by the ECC of the Cabinet in March 2013 and the Upfront tariff for new Bagasse based cogeneration power projects determined by NEPRA in May 2013. The site of proposed project is located nearly 7 km from the existing Dharki 132 kV Substation in the concession area of Sukkur Electric Power Company (SEPCO).

The location of Alliance Sugar Mills is shown in the sketch attached in Appendix-A. The maximum spillover to the National Grid from the site will be about 19 MW of electrical power. The project is expected to start commercial operation by December 2015. The electricity generated from this project would be supplied to the grid system of SEPCO through 132 kV grid available in the vicinity of this project.

## **1.2 Objectives**

The overall objective of the Study is to evolve an interconnection scheme between Alliance Sugar Mills Power Project and SEPCO network, for stable and reliable evacuation of 19 MW of electrical power generated from this plant, fulfilling N-1 reliability criteria. The specific objectives of this report are:

- To develop scheme of interconnections at 132 kV for which right of way (ROW) and space at the terminal substations would be available.



- To determine the performance of interconnection scheme during steady state conditions of system, normal and N-1 contingency, through load-flow analysis.
- To check if the contribution of fault current from this new plant increases the fault levels at the adjoining substations at 132 kV voltage levels to be within the rating of equipment of these substations, and also determine the short circuit ratings of the proposed equipment of the substation at Alliance Sugar Mills PP.
- To check if the interconnection withstands dynamic stability criteria of post fault recovery with good damping.

### **1.3 Planning Criteria**

The planning criteria required to be fulfilled by the proposed interconnection is as follows:

#### **Steady State:**

Voltage	± 5 %, Normal Operating Condition ± 10 %, Contingency Conditions
Frequency	50 Hz Nominal 49.8 Hz to 50.2 Hz variation in steady state 49.4 - 50.5Hz, Min/Max Contingency Freq. Band
Power Factor	0.8 Lagging; 0.9 Leading

#### **Short Circuit:**

132 kV Substation Equipment Rating 31.5 kA or 40k

#### **Dynamic/Transient:**

The system should revert back to normal condition after dying out of transients without losing synchronism with good damping

- a) Permanent three-phase fault on any primary transmission element; including: transmission circuit, substation bus section, transformer, or circuit breaker. It



is assumed that such a fault shall be cleared by the associated circuit breaker action in 5 cycles.

- b) Failure of a circuit breaker to clear a fault ("Stuck Breaker" condition) in 5 cycles, with back up clearing in 9 cycles after fault initiation.



## **2. Assumptions of Data**

The number of new generating units at Alliance Sugar Mills PP will be two. As per the data provided by the client the following assumptions have been made:

### **2.1 Alliance Mills-PP data**

Generator data:

Installed capacity of power plant	= 2 x 15 = 30 MW
Lump sum maximum generating capacity	= 30 MW
Power factor	= 0.80 lagging, 0.9 leading
Lump sum MVA capacity	= 2 x 18.75 MVA = 37.5 MVA
Inertia Constant	= 1.5552 MW-sec/MVA
Generating Voltage	= 11 kV
Transformer Rating	= 31.5/40 MVA

### **2.2 Network data**

The 132 kV network in the area near Alliance Sugar Mills Power Project are as shown in Sketches in Appendix-A. The system data of NTDC has been used as per permission granted by NTDC vide their letter No. GMPP/CEMP/TRP-333/Co-gen/ASML/948-52 dated 07-03-2014. The latest Generation Expansion Plan and Load Forecast has been used as provided by NTDC and is shown in Appendix-A.



### **3. Study Approach and Methodology**

#### **3.1 Understanding of the Problem**

Currently, Alliance Sugar Mills Ltd. has an installed generation capacity of 13.5 MW (1x6 MW and 1x7.5 MW). It is in the process of establishing a new power plant with 30 MW (2 x 15 MW) generating capacity based on high pressure boiler with the aim of exporting 19 MW power to the grid during the crushing season and little thereafter. Alliance Sugar Mills Ltd. Power Plant is located about 7 km from Darharki and will be embedded in the distribution network of SEPCO.

The proposed power plant embedded in local network in this area shall provide relief to the source substations such as Guddu and Liberty Power which are feeding the local network distantly.

The adequacy of SEPCO network of 132 kV in and around the proposed site of Alliance Sugar Mill PP would be investigated in this study for absorbing and transmitting this power fulfilling the reliability criteria.

#### **3.2 Approach to the problem**

The consultant has applied the following approaches to the problem:

- A base case network model has been prepared for the year 2016, in which the peak load scenario will occur after the commissioning of Alliance Sugar Mills PP in December 2015, comprising all 500kV, 220kV and 132 kV system, envisaging the load forecast, the generation additions and transmission expansions for that year particularly in SEPCO.
- Month of January 2016 has been selected for the study because it represents the maximum thermal dispatch conditions during the crushing season after the COD of Alliance Sugar Mills Power Plant. Thus the loading on the lines in the vicinity of this plant will be maximum allowing us to judge the maximum impact of the plant on the transmission system in its vicinity.





- Load flow and short circuit studies have also been performed for June 2020 to see the performance of the proposed Plant in extended term scenario after five years of its commissioning as per NTDC's requirement.
- Interconnection scheme without any physical constraints, like right of way or availability of space in the terminal substations, have been identified.
- Perform technical system studies for peak load conditions to confirm technical feasibility of the interconnections. The scheme will be subjected to standard analysis like load flow, short circuit, and transient stability study to check the strength of the machines and the proposed interconnection scheme under disturbed conditions.
- Determine the relevant equipment for the proposed technically feasible scheme.
- Recommend the technically most feasible scheme of interconnection.



## **4. Development of Scheme of Interconnection**

### **4.1 The Existing and Ongoing Network**

Currently, Alliance Sugar Mills has an installed generation capacity of 13.5 MW (1 x 6 MW and 1 x 7 MW). Alliance Sugar Mills Ltd. is in the process of establishing a new bagasse based 2 x 15 MW power plant employing high pressure boiler with the aim of exporting 19 MW power to the grid during the crushing season and little thereafter. Alliance Sugar Mills Ltd. Power Plant is located about 7 km from Dharki and will be embedded in the distribution network of SEPCO. The existing 132 kV network available around Dharki 132 kV grid stations is shown in Sketch-1 in Appendix-A.

Dharki 132/11 kV Substation is connected to Guddu and Liberty 132 kV Substation. Ubaro is connected to Dharki 132/11 kV Substation via a 132 kV radial single circuit.

Due to the layout of the network in the vicinity of Alliance Sugar Mills PP, the most feasible interconnection would be with Dharki 132 kV via double circuit. The distance of the plant from Dharki is about 7 km. The conductor used will be 132 kV Lynx conductor.

There is a strong 220 kV and 500 kV network in the vicinity connecting Guddu 220/132 kV grid station with Shikarpur 220 kV, Sibbi 220 kV and Guddu 500 kV substations. The planned R.Y. Khan 500/220/132 kV substation will also be present in the vicinity. A strong system helps in stable operation of a power plant.

### **4.2 The Scheme of Interconnection of Alliance-Mill PP**

Keeping in view of the above mentioned 132 kV network available in the vicinity of the site of the Alliance Sugar Mills PP, the interconnection scheme has been developed by laying 132 kV double circuit 132 kV circuit between Dharki and Alliance Sugar Mills PP. The distance of the plant from the Dharki is about 7 km. The



conductor used will be 132 kV Lynx conductor. This proposed interconnection scheme shown in Sketch-2 of Appendix-A.



## **5. Detailed Load Flow Studies**

The base cases have been developed for the peak conditions of January 2016 and for the year 2020 using the network data of NTDC and SEPCO available with PPI.

### **5.1 Peak Load Case 2016 Without Alliance Sugar Mills Power Plant**

The results of load flows of the peak load case of 2016 without Alliance Sugar Mills-PP have been plotted under normal conditions in Exhibit 0.0 in Appendix-B. The power flows on the circuits are seen well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 5\%$  of the nominal. We find no capacity constraints on 132 kV circuits under normal conditions i.e. without any outages of circuits.

N-1 contingency analysis has been carried out and the plotted results are attached in Appendix – B as follows:

Exhibit-0.1	Liberty to Dharki 132 kV Single Circuit Out
Exhibit-0.2	Dharki to Guddu-1 132 kV Single Circuit Out
Exhibit-0.3	Liberty to Mirpur.M 132 kV Single Circuit Out
Exhibit-0.4	Guddu-1 to Kashmore 132 kV Single Circuit Out
Exhibit-0.5	Guddu-Left to Kashmore 132 kV Single Circuit Out
Exhibit-0.6	Guddu-2 to Nawazabad 132 kV Single Circuit Out
Exhibit-0.7	Guddu-2 to Sadiqabad 132 kV Single Circuit Out
Exhibit-0.8	Nawazabad to Sadiqabad 132 kV Single Circuit Out

### **5.2 Peak Load Case 2016 With Alliance Sugar Mills Power Plant**

The scenario of Alliance Sugar Mills PP after the COD of the plant when it starts exporting 19 MW to the SEPCO network has now been studied. The scheme of interconnection modeled in the load flow for Alliance-PP is by double circuit to Dharki. The distance of the plant from the Dharki is about 7 km. The conductor used



will be 132 kV Lynx conductor. The results of load flows with Alliance-PP under normal conditions have been plotted in Exhibit 1.0 in Appendix-B.

The power flows on the circuits are seen well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 5\%$  off the nominal. We find no capacity constraints on 132 kV circuits under normal conditions i.e. without any outages of circuits.

N-1 contingency analysis has been carried out and the plotted results are attached in Appendix – B as follows;

Exhibit-1.1	Alliance-P1 to Alliance-P2 11 kV Single Circuit Out
Exhibit-1.2	Alliance to Dharki 132 kV Single Circuit Out
Exhibit-1.3	Liberty to Dharki 132 kV Single Circuit Out
Exhibit-1.4	Dharki to Guddu-1 132 kV Single Circuit Out
Exhibit-1.5	Liberty to Mirpur.M 132 kV Single Circuit Out
Exhibit-1.6	Guddu-1 to Kashmore 132 kV Single Circuit Out
Exhibit-1.7	Guddu-Left to Kashmore 132 kV Single Circuit Out
Exhibit-1.8	Guddu-2 to Nawazabad 132 kV Single Circuit Out
Exhibit-1.9	Guddu-2 to Sadiqabad 132 kV Single Circuit Out
Exhibit-1.10	Nawazabad to Sadiqabad 132 kV Single Circuit Out

We find that power flows on the circuits are well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 10\%$  of the nominal for contingency conditions' criteria.

### **5.3 Off-Peak Case With Alliance Sugar Mills Power Plant**

The scenario of Alliance Sugar Mills PP after the COD of the plant when it starts exporting 19 MW to the SEPCO network has now been studied under Off-Peak conditions. The scheme of interconnection modeled in the load flow for Alliance-PP is by laying double 132 kV circuit from Dharki to Alliance-PP. The distance of the plant from the Dharki is about 7 km. The conductor used will be 132 kV Lynx



conductor. The results of load flows with R. Y. Khan 500/220/132 kV substation and with Alliance-PP under normal Off-Peak conditions have been plotted in Exhibit 2.0 in Appendix-B.

The power flows on the circuits are seen well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 5\%$  off the nominal. We find no capacity constraints on 132 kV circuits under normal conditions i.e. without any outages of circuits.

N-1 contingency analysis has been carried out and the plotted results are attached in Appendix – B as follows;

Exhibit-2.1	Alliance-P1 to Alliance-P2 11 kV Single Circuit Out
Exhibit-2.2	Alliance to Dharki 132 kV Single Circuit Out
Exhibit-2.3	Liberty to Dharki 132 kV Single Circuit Out
Exhibit-2.4	Dharki to Guddu-1 132 kV Single Circuit Out
Exhibit-2.5	Liberty to Mirpur.M 132 kV Single Circuit Out
Exhibit-2.6	Guddu-1 to Kashmore 132 kV Single Circuit Out
Exhibit-2.7	Guddu-Left to Kashmore 132 kV Single Circuit Out
Exhibit-2.8	Guddu-2 to Nawazabad 132 kV Single Circuit Out
Exhibit-2.9	Guddu-2 to Sadiqabad 132 kV Single Circuit Out
Exhibit-2.10	Nawazabad to Sadiqabad 132 kV Single Circuit Out

#### **5.4 Peak Load Case 2020: Extended Term Scenario**

We have also studied the future scenario of June 2020 to assess the impact of the plant in the extended term of 5 years after its installation as per NTDC requirement.

The power flows on the circuits are seen well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 5\%$  off the nominal.

We find no capacity constraints on 132 kV circuits under normal conditions i.e. without any outages of circuits.



N-1 contingency analysis has been carried out and the plotted results are attached in Appendix – B as follows;

Exhibit-3.1	Alliance-P1 to Alliance-P2 11 kV Single Circuit Out
Exhibit-3.2	Alliance to Dharki 132 kV Single Circuit Out
Exhibit-3.3	Liberty to Dharki 132 kV Single Circuit Out
Exhibit-3.4	Dharki to Guddu-1 132 kV Single Circuit Out
Exhibit-3.5	Liberty to Mirpur.M 132 kV Single Circuit Out
Exhibit-3.6	Guddu-1 to Kashmore 132 kV Single Circuit Out
Exhibit-3.7	Guddu-Left to Kashmore 132 kV Single Circuit Out
Exhibit-3.8	Guddu-2 to Nawazabad 132 kV Single Circuit Out
Exhibit-3.9	Guddu-2 to Sadiqabad 132 kV Single Circuit Out
Exhibit-3.10	Nawazabad to Sadiqabad 132 kV Single Circuit Out

The power flows on the circuits are seen well within the rated capacities and the voltages on the bus bars are also within the permissible operating range of  $\pm 10\%$  off the nominal for contingency conditions' criteria

We find that there are no capacity constraints in the proposed connectivity scheme even after 5 years.

### **5.5 Conclusion of Load Flow Analysis**

From the analysis discussed above, we conclude that the proposed interconnection scheme of laying double circuit from Dharki to Alliance-PP is adequate to evacuate the 19 MW spillover power of Alliance-PP under normal and contingency conditions. The scenario of peak load conditions 2016 have been studied in detail. The extended term scenario of 2020 was also studied. It was found that in 2016 under all the contingency cases the intact circuits remain within the rated capacity. It is important to note that Alliance Sugar Mills PP would provide relief to the area by supplying both active and reactive power to the network.



The scenario of 2020 was also evaluated. There were no constraints found in the evacuation of power from Alliance Sugar Mills Cogeneration Power Plant in the steady state analysis.





## **6. Short Circuit Analysis**

### **6.1 Methodology and Assumptions**

The methodology of IEC 909 has been applied in all short circuit analyses in this report for which provision is available in the PSS/E software used for these studies.

The maximum fault currents have been calculated with the following assumptions under IEC 909:

- Set tap ratios to unity
- Set line charging to zero
- Set shunts to zero in positive sequence
- Desired voltage magnitude at bus bars set equal to 1.10 P.U. i.e. 10 % higher than nominal, which is the maximum permissible voltage under contingency condition.

For evaluation of maximum short circuit levels we have assumed contribution in the fault currents from all the installed generation capacity of hydel, thermal and nuclear plants in the system in the year 2016 i.e. all the generating units have been assumed on-bar in fault calculation's simulations.

The assumptions about the generator and the transformers data are the same as mentioned in Ch.2 of this report.

### **6.2 Fault Current Calculations without Alliance-PP – Year 2016**

In order to assess the short circuit strength of the network of 132 kV without Alliance-PP for SEPCO in the vicinity of the site of the Plant near Dharki, fault currents have been calculated for balanced three-phase and unbalanced single-phase short circuit conditions in the year 2016. These levels will give us the idea of the fault levels without Alliance-PP and later on how much the contribution of fault current from Alliance-PP may add to the existing levels,.

The results are attached in Appendix – C.

The short circuit levels have been calculated and plotted on the bus bars of 132 kV of substations lying in the electrical vicinity of our area of interest and are shown plotted



in the Exhibit 4.0 attached in Appendix-C. Both 3-phase and 1-phase fault currents are indicated in the Exhibit which are given in polar coordinates i.e. the magnitude and the angle of the current. The total fault currents are shown below the bus bar.

The tabular output of the short circuit calculations is also attached in Appendix-C for the 132 kV bus bars of our interest. The total maximum fault currents for 3-phase and 1-phase short circuit at these substations are summarized in Table 6.1. We see that the maximum fault currents do not exceed the short circuit ratings of the equipment at these 132 kV substations which normally are 20 kA, 25 kA or 31.5 kA for older substations and 40 kA for new substations.

**Table-6.1**  
**Maximum Short Circuit Levels without Alliance-PP in 2016**

Substation	3-Phase fault current, kA	1-Phase fault current, kA
Dharki 132 kV	9.28	8.96
Ubaro 132kV	5.39	4.79
Ghotki 132 kV	9.40	8.54
Mirpur Mathelo 132 kV	8.55	8.05
Liberty 132 kV	12.04	13.25
Guddu Left 132 kV	9.25	7.39
Kashmore 132 kV	13.88	12.37
Guddu-1 132 kV	17.19	17.12
Guddu-2 132 kV	11.59	12.14
Guddu 220 kV	35.05	37.95

### **6.3 Fault Current Calculations with Alliance-PP interconnected**

Fault currents have been calculated with Alliance-Mills PP connected as per the proposed interconnection scheme of laying double circuit from Dharki to Alliance-Mills PP. Fault currents have been evaluated for the peak case of 2016 in order to observe the maximum fault current on Alliance Sugar Mills PP and the Bus Bars in the vicinity of Alliance-PP after its interconnection with the SEPCO/NTDC network. Fault types applied are three phase and single-phase at 132 kV bus bars of Alliance-



PP itself and other bus bars of the 132 kV substations in the electrical vicinity of Dharki. The graphic results showing maximum 3-phase and 1-phase fault levels are indicated in Exhibit 4.1 for 2016. Both 3-phase and 1-phase fault currents are indicated in the Exhibit 4.1 which are given in polar coordinates i.e. the magnitude and the angle of the current. The total fault currents are shown below the bus bar. The tabulated results of short circuit analysis showing all the fault current contributions with short circuit impedances on 132 kV bus bars of the network in the electrical vicinity of Alliance-PP are placed in Appendix-C. Brief summary of fault currents at significant bus bars of our interest are tabulated in Table 6.2

**Table-6.2**  
**Maximum Short Circuit Levels with Alliance-PP in 2016**

<b>Substation</b>	<b>3-Phase fault current, kA</b>	<b>1-Phase fault current, kA</b>
<b>Alliance-P1 11 kV</b>	<b>25.53</b>	<b>29.70</b>
<b>Alliance-P2 11 kV</b>	<b>24.62</b>	<b>28.60</b>
<b>Alliance 132 kV</b>	<b>8.52</b>	<b>7.89</b>
<b>Dharki 132 kV</b>	<b>9.81</b>	<b>9.62</b>
<b>Ubaro 132kV</b>	<b>5.57</b>	<b>4.95</b>
<b>Ghotki 132 kV</b>	<b>9.53</b>	<b>8.62</b>
<b>Mirpur Mathelo 132 kV</b>	<b>8.72</b>	<b>8.16</b>
<b>Liberty 132 kV</b>	<b>12.45</b>	<b>13.66</b>
<b>Guddu Left 132 kV</b>	<b>9.33</b>	<b>7.44</b>
<b>Kashmore 132 kV</b>	<b>14.0</b>	<b>12.44</b>
<b>Guddu-1 132 kV</b>	<b>17.37</b>	<b>17.25</b>
<b>Guddu-2 132 kV</b>	<b>11.59</b>	<b>12.14</b>
<b>Guddu 220 kV</b>	<b>35.14</b>	<b>38.03</b>



The maximum short circuit level of the Alliance-PP 132 kV is 8.52 kA and 7.89 kA for 3-phase and 1-phase faults respectively in the year 2016. Therefore industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 132 kV switchyard of Alliance-PP as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity. For 11 kV the maximum short circuit levels of Alliance Sugar Mills PP are 25.53 kA and 29.70 kA for 3-phase and 1-phase faults respectively. Therefore the industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 11 kV switchyard of Alliance-PP taking care of any future generation additions and system reinforcements in its electrical vicinity.

#### **6.4 Conclusion of Short Circuit Analysis**

The short circuit analysis results show that for the proposed scheme of interconnection of Alliance-PP with Dharki 132 kV Substation, we don't find any problem of violations of short circuit ratings of the already installed equipment on the 132 kV equipment of substations in the vicinity of Alliance-PP due to fault current contributions from this power house under three-phase faults as well as single phase faults.

The maximum short circuit level of the Alliance-PP 132 kV is 8.52 kA and 7.89 kA for 3-phase and 1-phase faults respectively in the year 2016. Therefore industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 132 kV switchyard of Alliance-PP as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity. For 11 kV the maximum short circuit levels of Alliance-Mills PP are 25.53 kA and 29.70 kA for 3-phase and 1-phase faults respectively. Therefore the industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 11 kV switchyard of Alliance-PP taking care of any future generation additions and system reinforcements in its electrical vicinity.



## **7. Dynamic Stability Analysis**

### **7.1 Assumptions & Methodology**

#### **7.1.1 Dynamic Models**

The assumptions about the generator and its parameters are the same as mentioned in Ch.2 of this report.

We have employed the generic dynamic models available in the PSS/E model library for dynamic modeling of the generator, exciter and the governor as follows;

Generator	GENROU
Excitation System	IEEE1
Speed Governing System	TGOV1

#### **7.1.2 System Conditions**

Month of January 2016 has been selected for the study because it represents the peak load season after the COD of Alliance Mills Power Plant and thus the loading on the lines in the vicinity of Alliance-PP will be maximum allowing us to judge the maximum impact of the plant.

The proposed scheme of laying double circuit from Dharki to Alliance-PP has been modeled in the dynamic simulation.

All the power plants of WAPDA/NTDC from Tarbela to Hub have been dynamically represented in the simulation model.

#### **7.1.3 Presentation of Results**

The plotted results of the simulations runs are placed in Appendix-D. Each simulation is run for its first one second for the steady state conditions of the system prior to fault or disturbance. This is to establish the pre fault/disturbance conditions of the network under study were smooth and steady. Post fault recovery has been monitored for nine seconds. Usually all the transients due to non-linearity die out within 2-3 seconds after disturbance is cleared in the system.

#### **7.1.4 Worst Fault Cases**

Three phase faults are considered as the worst disturbance in the system. We have considered 3-phase fault in the closest vicinity of Alliance-PP i.e. right at the 132 kV



bus bar of Alliance-PP substation, cleared in 5 cycles, as normal clearing time for 132 kV i.e. 100 ms, followed by a permanent trip of a 132 kV single circuit emanating from this substation. Also to fulfil the Grid Code criteria the extreme worst case of stuck breaker (breaker failure) has also been studied where the fault clearing time is assumed 9 cycles i.e. 180 ms.

## **7.2 Dynamic Stability Simulations' Results with Alliance-PP**

### **7.2.1 Fault at 132 kV Near Alliance-PP**

We applied three-phase fault on Alliance-PP 132 kV bus bar, cleared fault in 5 cycles (100 ms) followed by trip of a 132 kV single circuit between Alliance-PP and Dharki 132 kV substation. We monitored different quantities for one second pre-fault and nine cycles after clearance of fault (post-fault) conditions and plotted the results attached in Appendix – D and discussed as follows;

Fig. 1.1 Bus Voltages

The bus voltages of 132 kV bus bars of Alliance-PP, Dharki, Liberty and Guddu-1 along with 11 kV bus bars of Alliance-PP are plotted. The results show quick recovery of the voltages after clearing of fault.

Fig. 1.2 Frequency

We see the system frequency recovers back to normal quickly after fault clearance.

Fig. 1.3 MW/MVAR Output of Generators of Alliance-PP

The MW/MVAR output of Alliance-PP gets back to the pre-fault output quickly after fast damping of the oscillations in its output. However MVAR output acquires equilibrium at a new value.

Fig. 1.4 Speed and mechanical power of Generators at Alliance-PP

The speed deviation of the generator, after clearing fault, damps down quickly returning to normal speed as of before fault. The transients in mechanical power also damp quickly and settle to a new equilibrium.

Fig. 1.5 MW Flow on Alliance-PP to Dharki 132 kV circuit

Followed by clearing of fault, the trip of a 132 kV single circuit from Alliance-PP to Dharki causes the entire output of Alliance-PP to flow on the intact 132 kV circuit



between Alliance-PP and Dharki 132kV circuit. This causes significant loading on the Alliance-PP-Dharki 132 kV circuit. We plotted the flows of MW and MVAR on this intact circuit and see that the power flows on this circuit attains to steady state level with power swings damping down fast.

Fig. 1.6 Rotor Angles

The rotor angles of the generators of Alliance-P1, Alliance-P2, Liberty 132 kV, Guddu 220 kV, JDW-II-USM 132 kV and HUB 500 kV are plotted relative to machines at HUB 500 kV. The results show that the rotor angle of Alliance-PP gets back after the first swing and damps down quickly. Similarly the rotor angles of other machines swing little after the fault and damp fast after clearing of fault. The system is strongly stable and very strong in damping the post fault oscillations.

### **7.2.2 Fault at 132kV Near Alliance-PP (Stuck Breaker)**

We applied three-phase fault on Alliance-PP 132 kV bus bar, cleared fault in 9 cycles (180 ms), to simulate a stuck breaker case, followed by trip of a 132 kV single circuit between Alliance-PP and Dharki 132 kV substation. We monitored different quantities for one second pre-fault and nine cycles after clearance of fault (post-fault) conditions and plotted the results attached in Appendix – D and discussed as follows;

Fig. 2.1 Bus Voltages

The bus voltages of 132 kV bus bars of Alliance-PP, Dharki, Liberty and Guddu-1 along with 11 kV bus bars of Alliance-PP are plotted. The results show quick recovery of the voltages after clearing of fault.

Fig. 2.2 Frequency

We see the system frequency recovers back to normal quickly after fault clearance.

Fig. 2.3 MW/MVAR Output of Generators of Alliance-PP

The MW/MVAR output of Alliance-PP gets back to the pre-fault output quickly after fast damping of the oscillations in its output. However MVAR output acquires equilibrium at a new value.

Fig. 2.4 Speed and mechanical power of Generators at Alliance-PP



The speed deviation of the generator, after clearing fault, damps down quickly returning to normal speed as of before fault. The transients in mechanical power also damp quickly and settle to a new equilibrium.

Fig. 2.5 MW Flow on Alliance-PP to Dharki 132 kV circuit

Followed by clearing of fault, the trip of a 132 kV single circuit from Alliance-PP to Dharki causes the entire output of Alliance-PP to flow on the intact 132 kV circuit between Alliance-PP and Dharki 132kV circuit. This causes significant loading on the Alliance-PP-Dharki 132 kV circuit. We plotted the flows of MW and MVAR on this intact circuit and see that the power flows on this circuit attains to steady state level with power swings damping down fast.

Fig. 2.6 Rotor Angles

The rotor angles of the generators of Alliance-P1, Alliance-P2, Liberty 132 kV, Guddu 220 kV, JDW-II-USM 132 kV and HUB 500 kV are plotted relative to machines at HUB 500 kV. The results show that the rotor angle of Alliance-PP gets back after the first swing and damps down quickly. Similarly the rotor angles of other machines swing little after the fault and damp fast after clearing of fault. The system is strongly stable and very strong in damping the post fault oscillations.

### 7.2.3 Fault at Dharki 132 kV (Far-End Fault)

We applied three-phase fault on far 132 kV bus bar of Dharki to study the impact of a disturbance in the grid on the performance of the plant. The fault is cleared in 5 cycles (100 ms) as standard clearing time for 132kV systems, followed by trip of 132 kV single circuit between Dharki and Liberty. We monitored different quantities for one second pre-fault and nine cycles after clearance of fault (post-fault) conditions and plotted the results attached in Appendix – D and discussed as follows;

Fig. 3.1 Bus Voltages

The bus voltages of 132 kV bus bars of Alliance-PP, Dharki, Liberty and Guddu-1 along with 11 kV bus bars of Alliance-PP are plotted. The results show quick recovery of the voltages after clearing of fault.





Fig. 3.2      Frequency

We see the system frequency recovers back to normal quickly after fault clearance.

Fig. 3.3      MW/MVAR Output of Generators of Alliance-PP

The MW/MVAR output of Alliance-PP gets back to the pre-fault output quickly after fast damping of the oscillations in its output. However MVAR output acquires equilibrium at a new value.

Fig. 3.4      Speed and mechanical power of Generators at Alliance-PP

The speed deviation of the generator, after clearing fault, damps down quickly returning to normal speed as of before fault. The transients in mechanical power also damp quickly and settle to a new equilibrium.

Fig. 3.5      MW Flow on Dharki to Guddu-1 132 kV circuit

We plotted the flows of MW and MVAR on Dharki to Guddu-1 132 kV circuit and see that the power flows on this circuit attains to steady state level with power swings damping down fast.

Fig. 3.6      Rotor Angles

The rotor angles of the generators of Alliance-P1, Alliance-P2, Liberty 132 kV, Guddu 220 kV, JDW-II-USM 132 kV and HUB 500 kV are plotted relative to machines at HUB 500 kV. The results show that the rotor angle of Alliance-PP gets back after the first swing and damps down quickly. Similarly the rotor angles of other machines swing little after the fault and damp fast after clearing of fault. The system is strongly stable and very strong in damping the post fault oscillations.

### **7.3 Conclusion of Dynamic Stability Analysis**

The results of dynamic stability carried out for 2016 show that the system is very strong and stable for the proposed scheme for the severest possible faults of 132 kV systems near to and far of Alliance-PP under all events of disturbances. Therefore there is no problem of dynamic stability for interconnection of Alliance-PP; it fulfills all the criteria of dynamic stability.



## 8. Conclusions

- ❖ The nearest interconnection facilities is the 132 kV substation of Dharki lies at about 7 km from the site of Alliance Sugar Mills Ltd.
- ❖ Due to the location of Alliance Sugar Mills, the most feasible interconnection scheme would be by laying double circuit from Dharki to Alliance Sugar Mills PP as shown in Sketch-2 in Appendix-A. The distance of the plant from the Dharki is about 7 km. The conductor used will be 132 kV Lynx conductor.
- ❖ The proposed scheme will require two breaker bays of 132 kV at Alliance Sugar Mills PP to connect with the 132 kV double circuits each from Dharki.
- ❖ In view of planned COD of the Alliance Sugar Mills Power Plant in December 2015, the above proposed interconnection scheme has been tested for steady state conditions through detailed load flow studies for the peak conditions of January 2016 for maximum thermal power dispatches in the grid during winter which is the crushing season.
- ❖ Steady state analysis by load flow reveals that proposed scheme is adequate to export 19 MW spillover of the plant under normal and contingency conditions.
- ❖ Also June 2020 case has been studied to see the performance of the proposed interconnection scheme in an extended term scenario. The system conditions of normal and N-1 contingency have been studied for all scenarios to meet the reliability criteria.
- ❖ The short circuit analysis has been carried out to calculate maximum fault levels at Alliance Sugar Mills PP and the substations of 132kV in its vicinity. We find that the fault currents for the proposed scheme are much less than the rated short circuit capacities of switchgear installed at these substations. There are no violations of exceeding the rating of the equipment due to contribution of fault current from Alliance Sugar Mills PP.
- ❖ The maximum short circuit levels of Alliance Sugar Mills PP 132 kV have been evaluated for the peak case of 2016 to evaluate the maximum fault currents on Alliance Sugar Mills PP and the 132 kV Substations in its vicinity in the future scenario. The maximum short circuit level of the Alliance-PP 132 kV is 8.52 kA



and 7.89 kA for 3-phase and 1-phase faults respectively in the year 2016. Therefore industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 132 kV switchyard of Alliance-PP as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity. For 11 kV the maximum short circuit levels of Alliance Sugar Mills PP are 25.53 kA and 29.70 kA for 3-phase and 1-phase faults respectively. Therefore the industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 11 kV switchyard of Alliance-PP taking care of any future generation additions and system reinforcements in its electrical vicinity.

- ❖ The dynamic stability analysis of proposed scheme of interconnection has been carried out. The stability check for the worst case of three phase fault right on the 132 kV bus bar of Alliance Mills PP substation followed by the final trip of 132 kV circuits emanating from this substation, has been performed for fault clearing of 5 cycles (100 ms) as understood to be the normal fault clearing time of 132 kV protection system. Also the extreme worst case of stuck breaker (breaker failure) has been studied where the fault clearing time is assumed 9 cycles i.e. 180 ms. In all events, the system is found strong enough to stay stable and recovered with fast damping. The stability of system for far end faults of 3-phase occurring at Dharki 132 kV bus bar has also been checked. The proposed scheme successfully passed the dynamic stability checks for near and far faults even for the most stringent cases.
- ❖ The proposed scheme of interconnection has been evaluated for the years of 2016 and 2020 to evaluate the future scenario. The proposed interconnection scheme causes no technical constraints or problems and is therefore recommended to be adopted. In fact the studies establish that Alliance-Mills PP will help relieve the identified existing and future constraints in its vicinity



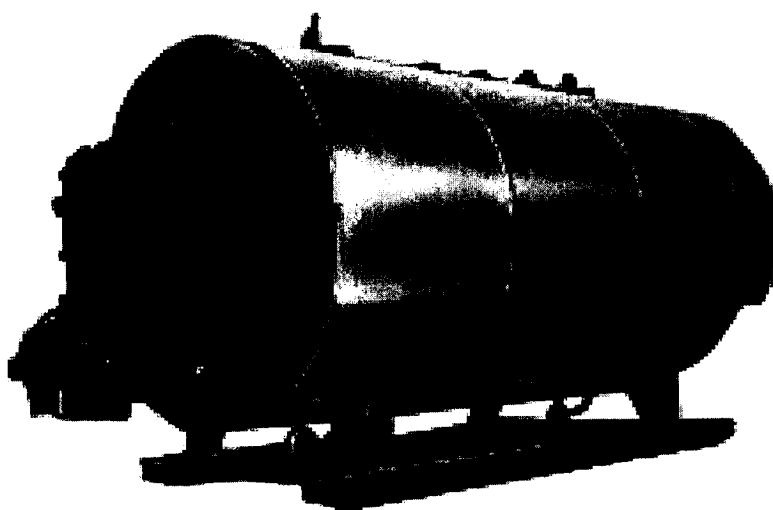
# **Environmental Consultancies & Options**

**Alliance Sugar Mills (Pvt) Limited**

**INITIAL ENVIRONMENTAL EXAMINATION (IEE)**

**FOR**

**"THE INSTALLATION OF A 30 MW BAGASSE FIRED COGENERATION POWER PLANT"**



**May 2014**

**Alliance Sugar Mills (Pvt) Limited**

**KLP Road Rasheedabad, Tehsil Ubauro, District Ghotki**

## CONTENTS

Page No .

**EXECUTIVE SUMMARY**

<b>1. INTRODUCTION</b>	<b>1-1</b>
1.1 ALLIANCE SUGAR MILLS (PVT) LIMITED-THE PROPONENT	1-1
1.1.1 Background	1-1
1.1.2 Principle Activities	1-1
1.1.3 Principle Business Premises	1-1
1.1.4 Environmental Management Activities	1-2
1.2 OVERVIEW OF ACTIVITIES FOR PROPOSED PROJECT	1-2
1.2.1 Project Area & Location	1-4
<b>2. SCOPE &amp; METHODOLOGY</b>	<b>2-1</b>
2.1 OBJECTIVES OF THE IEE	2-1
2.2 SCOPE OF THE IEE	2-1
2.3 APPROACH & METHODOLOGY	2-1
2.4 REPORT ORGANIZATION.	2-3
<b>3. STATUTORY REQUIREMENTS &amp; STANDARDS</b>	<b>3-1</b>
3.1 POLICY GUIDELINES	3-1
3.2 ENVIRONMENTAL INSTITUTIONS & ADMINISTRATION	3-2
3.3 LAWS, REGULATIONS & GUIDELINES	3-2
3.3.1 Pakistan Environmental Protection Act 1997	3-2
3.3.2 PEPA, Review of IEE and EIA Regulations 2000	3-3
3.3.3 National Environmental Quality Standards (NEQs)	3-4
3.3.4 National Environmental Quality Standards (Self-Monitoring and Reporting Industry) Rules, 2001	3-5
3.3.5 Safety Regulations	3-13
3.3.6 Other Regulations	3-13
3.4 ENVIRONMENTAL GUIDELINES OF PAKISTAN EPA	3-13
3.5 ENVIRONMENTAL GUIDELINES OF UNEP AND THE WORLD BANK	3-14
3.6 INTERNATIONAL TREATIES AND OBLIGATIONS	3-14
3.7 ENVIRONMENTAL ASSESSMENT PROCESS	3-14
<b>4. PROJECT DESCRIPTION</b>	<b>4-1</b>
4.1 PROJECT OBJECTIVES	4-1

4.2	SITE IDENTIFICATION AND DEVELOPMENT	4-1
4.2.1	Development of Site Area	4-2
4.2.2	Development of Water Supply System	4-2
4.3	PROCESS DESCRIPTION	4-3
4.4	PROJECT COMPONENTS	4-5
4.4.1	Pre-Construction Phase	4-5
4.4.2	Construction Phase	4-5
4.4.3	Post Construction Phase	4-6
5.	<b>ENVIRONMENTAL SETTING</b>	<b>5-1</b>
5.1	GEOMORPHOLOGY AND GEOLOGY	5-2
5.2	WATER RESOURCES	5-3
5.3	DRAINAGE FEATURE	5-3
5.4	CLIMATE	5-3
5.4.1	Description of Seasons	5-3
5.4.2	Temperature	5-3
5.4.3	Rainfall and Hydrology	5-4
5.4.4	Relative Humidity	5-5
5.4.5	Wind Direction and Speed	5-5
5.5	ECOLOGY	5-7
5.5.1	Floral Survey	5-7
5.5.2	Fauna in Wild Life	5-8
5.6	SOCIOECONOMIC ENVIRONMENT	5-9
5.6.1	General	5-9
5.6.2	Medical Facilities	5-10
5.6.3	Project Response	5-10
5.6.4	Health, Safety & Environment Status	5-11
5.6.5	Administrative Setup	5-11
5.6.6	Religion	5-11
5.6.7	Languages	5-12
5.6.8	Dress	5-12
5.6.9	Industry	5-12
5.6.10	Occupations	5-12
5.6.11	Education	5-12
5.6.12	Agriculture	5-13
5.6.13	Rural and Urban Distribution	5-13
5.6.14	Population	5-13

## 5.6.15 Site of Physical, Cultural Heritage

6 IMPACTS, ALTERNATIVES AND MITIGATION"	5.13
6.1 Environmental Concerns	6-1
6.1.1 Effluent disposal	6-2
6.1.2 Solid Waste	6-2
6.1.3 Particulate Matter	6-3
6.1.4 Noise level	6-3
6.1.5 Water Resources	6-3
6.1.6 Portable Water Quality	6-4
6.1.7 Waste Water	6-5
6.1.8 Soil Quality	6-6
6.1.9 Air Quality	6-8
6.1.10 Noise	6-8
6.1.11 Dust Emissions from Road	6-10
6.2 BIOLOGICAL RESOURCES	6-14
6.2.1 Flora Fauna	6-14
6.3 SOCIO-ECONOMIC	6-14
	6-15
<b>7. ENVIRONMENTAL MANAGEMENT PLAN</b>	
7.1 GOALS OF ENVIRONMENTAL MANAGEMENT PLAN	<b>7-1</b>
7.2 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES	7-1
7.3 ENVIRONMENTAL CONTROL MEASURES	7-2
7.3.1 Site Selection and Acquisition	7-2
7.3.2 Access Track Development / Upgrade	7-2
7.3.3 Vehicle Operation	7-2
7.3.4 Waste Disposal	7-3
7.3.5 Hazardous Materials	7-5
7.3.6 Social	7-6
7.3.7 Biological Resource	7-6
7.3.8 Plantation Plan	7-7
7.3.9 Waste Water	7-7
7.3.10 Traffic Management	7-7
7.3.11 Historical, Archeological and Cultural Sites	7-8
7.3.12 Health, Safety and Environment	7-8
7.3.13 General	7-9
7.3.14 Restoration and Reclamation	7-9

7.4	MONITORING	7-10
7.4.1	Monitoring Approach	7-10
7.4.2	Operational Activity Monitoring	7-10
7.4.3	Independent Monitoring	7-11
7.4.4	Fire Management	7-11
8.	CONCLUSION	8-1



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Availability of power in Pakistan falls short of the population's needs by 15%. Pakistan has production capacity of about 16,500 MW but faces a shortfall of between 4,000-5,000 MW. The main problem with Pakistan's poor power generation is rising political instability, together with rising demands for power and lack of efficiency.

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Alliance Sugar Mills (Pvt) Limited has engaged Environmental Consultancies and Options (ECO) to conduct an initial environmental examination (IEE) of the proposed project. This document presents an IEE report having a comprehensive environmental management plan (EMP) for the construction & operational phase of the proposed project.

### **The Project**

The proposed project is the installation of a 30 MW Bagasse Fired Cogeneration Power Plant. The total area of proposed project is about 30 Acres of land. The proposed project site is situated on KLP Road Rasheedabad Tehsil Ubauro, District Ghotki, 50 km from Sadiqabad City and 110 km from Sukkur City.

### **Principle Activities**

Plant consist of 01 boilers of capacity 140 T/hr each, pressure 67 bars, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported; total generation capacity of plant will be 30 MW. Self utilization of power during cane

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Sugar cane bagasse shall be used in the Boiler for generation of high pressure steam, this high pressure & temperature steam is used to run both the condensing and extraction turbines. Exhaust of turbine is utilized in the process house for heating and boiling object for cane sugar manufacturing. Exhaust steam is condensed into condensate. This condensate is return to boiler and used as boiler feed water. Turbo Alternators are coupled with steam turbine and electricity is generated: Surplus electricity of 15 MW during cane crushing season will be sold to SEPCO. Alliance Sugar Mills (Pvt) Ltd is situated on KLP Road Rasheedabad, Tehsil Ubauro, District Ghotki, 50 km from Sadiqabad City and 110 km from Sukkur City. Plant consist of 01 boiler of capacity 140 T/hr. each, pressure 67 bars, temperature 485C and 01 condensing & extraction turbine having capacity 15MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported; total generation capacity of plant will be 30 MW. Self-utilization of power during cane crushing season will be 11 MW and remaining 19 MW shall be dispatched to SEPCO.

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The study has been conducted using standard environmental assessment methodology in accordance with national and International environmental guidelines. The study evaluates the intended site development activities according to the environmental assessment requirements of the Environmental Protections Agency. The contents of this report conform to the environmental guidelines of the Pakistan Environmental Protections Agency. In addition, the environmental guidelines of International donor agencies such as World Bank and the Asian Development Bank have also been consulted.

### **Environmental Setting**

Construction of the proposed project is energy production unit named Alliance Sugar Mills (Pvt) Limited. The proposed project will be constructed on KLP Road, Rasheedabad, Tehsil Ubauro, District Ghotki,

District Ghotki. Major Locations around the project site are Ubauro, Daharki, retti, Rounti, Chowk Mari.

Ghotki District is a district of Sindh Province. Mirpur Mathelo is the capital of Ghotki District. The town is located at 28°1'0N 69°19'0E with an altitude of 72 metres (239 ft). Ghotki was founded by an ambassador general of Raja Ibn Selaj Bihman (a relative of Raja Dahar of Sindh) in 637 A.D (15th year of Hijra) named Hath Sam who set up an army settlement/camp after defeating a Muslim Army of Arabia. The camp later assumed the shape of a village on 17th Shaban in 17th year of Hijra (639 A.D) when people of different tribes came to settle here. Two years later the people deserted this village and it again became a land of birds and animals. In year 695 A.D certain fishermen came here and settled and named the village as "Miani". But when the river changed its course the people left the village again to the mercy of jackals.

In 712 A.D Mohammad Bin Qasim conquered the Sindh by defeating Raja Dahar. Ghoti Ibn Samed Ibn Patel a Hindu born to a son of Raja Dahar was settled here. Ghoti voluntarily and happily accepted the Islam on the hands of Arabs and married to a new Muslim -Emna according to Shariat-e-Mohammadi and gave birth to a baby boy Tameer from whom the Ghoti tribe came into being. Arabs awarded many jagirs to Ghotas and named this village as "Dharwali" to honour their grandfather. Subsequently as the Ghotas progressed quantitatively and culturally the name of village was changed from Dharwali to Loh-e-Saheban when a Saint came from Baghdad whose name was Syed Mubarak Shah Jillani Baghdadi who married with the girl of Dhareja family the daughter of Adal Khan Dharejo and permanently settled here. After the British conquest of Sindh province in 1847, they awarded huge blocks of irrigated, fertile land to the Ghoti tribal chieftains in return of their loyalty to the British. Gradually, the town's name changed into Ghotki (of Ghotas) in lieu of Loh-e-Saheban.

The Ghotki District itself is administratively subdivided into 5 tehsils. According to the 2010 Census, District population is 1,282,392. The area of Ghotki District is about 6,329 Km<sup>2</sup>. District Ghotki is a commercial and industrial centre. Industries include fertilizer, cotton production and processing, Rice mills, flour mills, sugar and oil mills and large-scale power generation projects. Mango and dates are two main fruits of this city. Cottage industries include ginning, pottery/clay products, agricultural machinery, handicrafts, and embroidery.

The river Indus flows adjacent to the district in the north and its direction of flow from North-East to South-West. The length of riverian tract is 87 KMs. The Floody plain is called Katcha, bounded by safety bunds and river forests abound in the area. The total area of district under forest and katcha is 402,578 acres, which is total area's 25.88% percent.

#### **Fauna in Wild Life**

Through field visits, interviews with local population and review of earlier studies indicate that almost no wild life exists in the project area. That can be envisaged in the light of extensive human activity and elaborate production facilities in the production area.

### **Socioeconomic Environment**

Administratively, the project area falls in the Province of Sindh.. The project area is densely populated and the educational and health facilities are sufficiently available in the area.

### **Potential Project Impact & Mitigation**

The potential adverse impacts associated with the proposed project field development activities may include: Physical scarring (caused by the clearing and leveling of land); Land slippage and soil erosion; soil condemnation; air pollution; noise and disturbance; loss of vegetation and habitats; hazard to population; and the influx of work force.

Land clearing and leveling may increase the risk of land slippage and soil erosion. Minimizing the vegetation loss can reduce this risk. The spillage and leakage of fuel, oils and other chemicals may lead to soil contamination. Possible contaminant sources include fuel, oil and chemical storage area, at site and vehicles and machinery used at the site.

Water resources are available within the project area and the water needs shall be met through tube wells and by the local water supply:

The ambient air quality of the area can be affected by exhaust emissions from the generators at the site, vehicles and other construction equipments. In addition the kicked

up dust can also caused deterioration in the air quality of the area in the immediate vicinity of the activities. To reduce these impacts, the maximum possible distance will be kept from settlements and vehicle speed will be reduced on roads passing through or close to them

To mitigate the project impacts of the biological resources of the area, the following measures will be incorporated into its design:

- Vegetation loss will be kept to' absolute minimum large bushes and, dense vegetation will be avoided. Trees will not be felled.
- Fires in the open will not be allowed.
- A "no-hunting, no trapping, no harassing" policy will be strictly enforced.

- Waste of any kind will not be discharged in the area.
- Field activities and vehicle movements during the night will not be allowed

Disturbance to the community and damage to wells and houses are among the key adverse effects on the proposed activities in the project areas. Maintaining a safe distance from communities, keeping the local population informed of the activities, and compensating (and/or repairing) the damage caused by the project activities will minimize the adverse impacts on the local population.

### **Conclusion**

After assessing the proposed project activities and investigating the project area, the environmental consultants, Environmental Consultancies and Options (ECO) have concluded that:

"If the activities are undertaken as proposed and described in this report, and the recommended mitigation and environmental management measures are implemented/adopted the project will not result in any long-term or significant impacts on the local community or the environment".

Therefore no 'Environmental or Social Impact Assessment (ESIA) is required for this project. Consultants accordingly recommended without any reservation that no objection certificate (NOC) may be issued allowing the commencement of the installation of the project.

## CONTENTS

Page No .

## EXECUTIVE SUMMARY

1.	INTRODUCTION	1-1
1.1	ALLIANCE SUGAR MILLS (PVT) LIMITED-THE PROPONENT	1-1
1.1.1	Background	1-1
1.1.2	Principle Activities	1-1
1.1.3	Principle Business Premises	1-1
1.1.4	Environmental Management Activities	1-2
1.2	OVERVIEW OF ACTIVITIES FOR PROPOSED PROJECT	1-2
1.2.1	Project Area & Location	1-4
2.	SCOPE & METHODOLOGY	2-1
2.1	OBJECTIVES OF THE IEE	2-1
2.2	SCOPE OF THE IEE	2-1
2.3	APPROACH & METHODOLOGY	2-1
2.4	REPORT ORGANIZATION.	2-3
3.	STATUTORY REQUIREMENTS & STANDARDS	3-1
3.1	POLICY GUIDELINES	3-1
3.2	ENVIRONMENTAL INSTITUTIONS & ADMINISTRATION	3-2
3.3	LAWS, REGULATIONS & GUIDELINES	3-2
3.3.1	Pakistan Environmental Protection Act 1997	3-2
3.3.2	PEPA, Review of IEE and EIA Regulations 2000	3-3
3.3.3	National Environmental Quality Standards (NEQs)	3-4
3.3.4	National Environmental Quality Standards (Self-Monitoring and Reporting Industry) Rules, 2001	3-5
3.3.5	Safety Regulations	3-13
3.3.6	Other Regulations	3-13
3.4	ENVIRONMENTAL GUIDELINES OF PAKISTAN EPA	3-13
3.5	ENVIRONMENTAL GUIDELINES OF UNEP AND THE WORLD BANK	3-14
3.6	INTERNATIONAL TREATIES AND OBLIGATIONS	3-14
3.7	ENVIRONMENTAL ASSESSMENT PROCESS	3-14
4.	PROJECT DESCRIPTION	4-1
4.1	PROJECT OBJECTIVES	4-1

4.2	SITE IDENTIFICATION AND DEVELOPMENT	4-1
4.2.1	Development of Site Area	4-2
4.2.2	Development of Water Supply System	4-2
4.3	PROCESS DESCRIPTION	4-3
4.4	PROJECT COMPONENTS	4-5
4.4.1	Pre-Construction Phase	4-5
4.4.2	Construction Phase	4-5
4.4.3	Post Construction Phase	4-6
5.	<b>ENVIRONMENTAL SETTING</b>	<b>5-1</b>
5.1	GEOMORPHOLOGY AND GEOLOGY	5-2
5.2	WATER RESOURCES	5-3
5.3	DRAINAGE FEATURE	5-3
5.4	CLIMATE	5-3
5.4.1	Description of Seasons	5-3
5.4.2	Temperature	5-3
5.4.3	Rainfall and Hydrology	5-4
5.4.4	Relative Humidity	5-5
5.4.5	Wind Direction and Speed	5-5
5.5	ECOLOGY	5-7
5.5.1	Floral Survey	5-7
5.5.2	Fauna in Wild Life	5-8
5.6	SOCIOECONOMIC ENVIRONMENT	5-9
5.6.1	General	5-9
5.6.2	Medical Facilities	5-10
5.6.3	Project Response	5-10
5.6.4	Health, Safety & Environment Status	5-11
5.6.5	Administrative Setup	5-11
5.6.6	Religion	5-11
5.6.7	Languages	5-12
5.6.8	Dress	5-12
5.6.9	Industry	5-12
5.6.10	Occupations	5-12
5.6.11	Education	5-12
5.6.12	Agriculture	5-13
5.6.13	Rural and Urban Distribution	5-13
5.6.14	Population	5-13

## 5.6.15 Site of Physical, Cultural Heritage

6 IMPACTS, ALTERNATIVES AND	5.13
MITIGATION"	
6.1 Environmental Concerns	6-1
6.1.1 Effluent disposal	6-2
6.1.2 Solid Waste	6-2
6.1.3 Particulate Matter	6-3
6.1.4 Noise level	6-3
6.1.5 Water Resources	6-3
6.1.6 Portable Water Quality	6-4
6.1.7 Waste Water	6-5
6.1.8 Soil Quality	6-6
6.1.9 Air Quality	6-8
6.1.10 Noise	6-8
6.1.11 Dust Emissions from Road	6-10
6.2 BIOLOGICAL RESOURCES	6-14
6.2.1 Flora Fauna	6-14
6.3 SOCIO-ECONOMIC	6-14
	6-15
<b>7. ENVIRONMENTAL MANAGEMENT PLAN</b>	
7.1 GOALS OF ENVIRONMENTAL MANAGEMENT	<b>7-1</b>
PLAN	
7.2 ORGANIZATIONAL STRUCTURE AND	7-1
RESPONSIBILITIES	7-1
7.3 ENVIRONMENTAL CONTROL MEASURES	7-2
7.3.1 Site Selection and Acquisition	7-2
7.3.2 Access Track Development / Upgrade	7-2
7.3.3 Vehicle Operation	7-2
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7.3.5 Hazardous Materials	7-5
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7.3.8 Plantation Plan	7-7
7.3.9 Waste Water	7-7
7.3.10 Traffic Management	7-7
7.3.11 Historical, Archeological and Cultural Sites	7-8
7.3.12 Health, Safety and Environment	7-8
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7.3.14 Restoration and Reclamation	7-9



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7.4.1	Monitoring Approach	7-10
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In 712 A.D Mohammad Bin Qasim conquered the Sindh by defeating Raja Dahar. Ghot Ibn Samed Ibn Patel a Hindu born to a son of Raja Dahar was settled here. Ghot voluntarily and happily accepted the Islam on the hands of Arabs and married to a new Muslim -Emna according to Shariat-e-Mohammadi and gave birth to a baby boy Tameer from whom the Ghot tribe came into being. Arabs awarded many jagirs to Ghotas and named this village as "Dharwali" to honour their grandfather. Subsequently as the Ghotas progressed quantitatively and culturally the name of village was changed from Dharwali to Loh-e-Saheban when a Saint came from Baghdad whose name was Syed Mubarak Shah Jilani Baghdadi who married with the girl of Dhareja family the daughter of Adal Khan Dharejo and permanently settled here. After the British conquest of Sindh province in 1847, they awarded huge blocks of irrigated, fertile land to the Ghotia tribal chieftains in return of their loyalty to the British. Gradually, the town's name changed into Ghotki (of Ghotias) in lieu of Loh-e-Saheban.

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The river Indus flows adjacent to the district in the north and its direction of flow from North-East to South-West. The length of riverian tract is 87 KMs. The Floody plain is called Katcha, bounded by safety bunds and river forests abound in the area. The total area of district under forest and katcha is 402,578 acres, which is total area's 25.88% percent.

### **Fauna in Wild Life**

Through field visits, interviews with local population and review of earlier studies indicate that almost no wild life exists in the project area. That can be envisaged in the light of extensive human activity and elaborate production facilities in the production area.

### **Socioeconomic Environment**

Administratively, the project area falls in the Province of Sindh.. The project area is densely populated and the educational and health facilities are sufficiently available in the area.

### **Potential Project Impact & Mitigation**

The potential adverse impacts associated with the proposed project field development activities may include: Physical scarring (caused by the clearing and leveling of land); Land slippage and soil erosion; soil condemnation; air pollution; noise and disturbance; loss of vegetation and habitats; hazard to population; and the influx of work force.

Land clearing and leveling may increase the risk of land slippage and soil erosion. Minimizing the vegetation loss can reduce this risk. The spillage and leakage of fuel, oils and other chemicals may lead to soil contamination. Possible contaminant sources include fuel, oil and chemical storage area, at site and vehicles and machinery used at the site.

Water resources are available within the project area and the water needs shall be met through tube wells and by the local water supply:

The ambient air quality of the area can be affected by exhaust emissions from the generators at the site, vehicles and other construction equipments. In addition the kicked

up dust can also caused deterioration in the air quality of the area in the immediate vicinity of the activities. To reduce these impacts, the maximum possible distance will be kept from settlements and vehicle speed will be reduced on roads passing through or close to them

To mitigate the project impacts of the biological resources of the area, the following measures will be incorporated into its design:

- Vegetation loss will be kept to' absolute minimum large bushes and, dense vegetation will be avoided. Trees will not be felled.
- Fires in the open will not be allowed.
- A "no-hunting, no trapping, no harassing" policy will be strictly enforced.

- Waste of any kind will not be discharged in the area.
- Field activities and vehicle movements during the night will not be allowed

Disturbance to the community and damage to wells and houses are among the key adverse effects on the proposed activities in the project areas. Maintaining a safe distance from communities, keeping the local population informed of the activities, and compensating (and/or repairing) the damage caused by the project activities will minimize the adverse impacts on the local population.

### **Conclusion**

After assessing the proposed project activities and investigating the project area, the environmental consultants, Environmental Consultancies and Options (ECO) have concluded that:

"If the activities are undertaken as proposed and described in this report, and the recommended mitigation and environmental management measures are implemented/adopted the project will not result in any long-term or significant impacts on the local community or the environment".

Therefore no 'Environmental or Social Impact Assessment (ESIA) is required for this project. Consultants accordingly recommended without any reservation that no objection certificate (NOC) may be issued allowing the commencement of the installation of the project.

## **Chapter - 1: Introduction**

### **1.1 Alliance Sugar Mills (Pvt.) Limited. - The Proponents**

#### **1.1.1 Background: Alliance Sugar Mills (Pvt.) Limited**

The Alliance Sugar Mills (Pvt.) Limited is emerging in the field of energy production in Pakistan owned and managed by a team of well experienced professional engineers, dealing with all kinds of contracts for energy production. It has at its disposal a competent and dedicated team of Professionals, Directors, Members and Associates who are well qualified and experienced to undertake any type/magnitude of energy production projects. The qualified engineers of the company are ever ready to accept new challenges and explore new horizons.

#### **Importance of Energy Production**

Energy is important whether its solar energy, mechanical energy, nuclear power, or the energy your body makes that allows you to talk, move, and walk. These are the tasks that we normally do that involve energy, and that we couldn't do without it. Availability of power in Pakistan falls short of the population's needs by 15%. Pakistan has production capacity of about 16,500 MW but faces a shortfall of between 4,000-5,000 MW. The main problem with Pakistan's poor power generation is rising political instability, together with rising demands for power and lack of efficiency.

#### **1.1.2 Principle Activities**

Plant consist of 01 boilers of capacity 140 T/hr each, pressure 67 bars, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported; total generation capacity of plant will be 30 MW. Self utilization of power during cane crushing season will be 11 MW and the remaining 19 MW shall be dispatched to SEPCO.

### **1.1.3 Principle Business Premises**

**Head office:** 3-B Nisar Road, Nisar Colony, Lahore Cantt.

**Proposed Site:** KLP Road, Rasheedabad, Tehsil Ubauro, District Ghotki.

### **1.1.4 Environmental Management Activities**

Alliance Sugar Mills (Pvt.) Limited gives priority towards safety, security, health and environment and its meets or exceeds the local regulatory requirements. In order to comply with legal requirements initial environmental examination has been carried out for the proposed site.

Alliance Sugar Mills (Pvt.) Limited is committed to ensure that all operations are carried out with due regard for environmental protection and to meet legal requirements.

## **1.2 Overview of Activities for the Proposed Project**

Sugar cane bagasse shall be used in the Boiler for generation of high pressure steam, this high pressure & temperature steam is used to run the both condensing and extraction turbines. Exhaust of turbine is utilized in the process house for heating and boiling object for cane sugar manufacturing. Exhaust steam is condensed into condensate this condensate is return to boiler and used as boiler feed water. Turbo Alternators are coupled with steam turbine and electricity is generated. Surplus electricity of 19 MW during cane crushing season will be sold to SEPCO. Alliance Sugar Mills (Pvt.) Ltd is situated on KLP road Rasheedabad Tehsil Ubauro, 50 km from Sadiqabad City and 110 km from Sukkur City. Plant consist of 01 boiler of capacity 140 T/hr each, pressure 67 bars, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported, total generation capacity of plant will be 30 MW. Self utilization of power during cane crushing season will be 11 MW and the remaining 19 MW shall be dispatched to SEPCO. Bagasse will be fuel source for boiler.

Ghotki District is a district of Sindh Province. Mirpur Mathelo is the capital of Ghotki District. The town is located at 28°1'0N 69°19'0E with an altitude of 72 metres (239 ft). Ghotki was founded by an ambassador general of Raja Ibn Selaj Birhman (a relative of Raja Dahar of Sindh) in 637 A.D (15th year of Hijra) named Hath Sam who



set up an army settlement/camp after defeating a Muslim Army of Arabia. The camp later assumed the shape of a village on 17th Shaban in 17th year of Hijra (639 A.D) when people of different tribes came to settle here. Two years later the people deserted this village and it again became a land of birds and animals. In year 695 A.D certain fishermen came here and settled and named the village as "Miani". But when the river changed its course the people left the village again to the mercy of jackals. In 712 A.D Mohammad Bin Qasim conquered the Sindh by defeating Raja Dahar. Ghot Ibn Samed Ibn Patel a Hindu born to a son of Raja Dahar was settled here. Ghot voluntarily and happily accepted the Islam on the hands of Arabs and married to a new Muslim -Emna according to Shariat-e-Mohammadi and gave birth to a baby boy Tameer from whom the Ghot tribe came into being. Arabs awarded many jagirs to Ghotas and named this village as "Dharwali" to honour their grandfather. Subsequently as the Ghotas progressed quantitatively and culturally the name of village was changed from Dharwali to Loh-e-Saheban when a Saint came from Baghdad whose name was Syed Mubarak Shah Jillani Baghdadi who married with the girl of Dhareja family the daughter of Adal Khan Dharejo and permanently settled here. After the British conquest of Sindh province in 1847, they awarded huge blocks of irrigated, fertile land to the Ghotia tribal chieftains in return of their loyalty to the British. Gradually, the town's name changed into Ghotki (of Ghottas) in lieu of Loh-e-Saheban.

The Ghotki District itself is administratively subdivided into 5 tehsils. According to the 2010 Census, District population is 1,282,392. The area of Ghotki District is about 6,329 Km<sup>2</sup>. District Ghotki is a commercial and industrial centre. Industries include fertilizer, cotton production and processing, Rice mills, flour mills, sugar and oil mills and large-scale power generation projects. Mango and dates are two main fruits of this city. Cottage industries include ginning, pottery/clay products, agricultural machinery, handicrafts, and embroidery.

The river Indus flows adjacent to the district in the north and its direction of flow from North-East to South- West. The length of riverian tract is 87 KMs. The Floody plain is called Katcha, bounded by safety bunds and river forests abound in the area. The total area of district under forest and katcha is 402,578 acres, which is total area's 25.88% percent.

Major educational institutes include the followings:

- Govt. Degree Collge Ghotki
- Virtual University Campus Ghotki
- Islamia Public School Ghotki
- Roshan Tara School Ghotki
- Glamour Institute of IT
- Ammra School Ghotki
- Law College Ghotki
- DC School Ghotki
- Govt Girls College Ghotki

### **1.2.1 Project Area & Location**

The project area is about 30 Acres of land. According to the design, out of total area of plot, 11% will be the open area and construction will be carried out on the rest of the 24% land. Alliance Sugar Mills (Pvt.) Ltd is situated on Karachi Lahore Peshawar (KLP) road Rasheedabad Tehsil Ubauro, 50 km from Sadiqabad City and 110 km from Sukkur City. Plant consist of 01 boiler of capacity 140 T/hr each, pressure 67 bars, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported; total generation capacity of plant will be 30 MW. Self utilization of power during cane crushing season will be 11 MW and the remaining 19 MW shall be dispatched to SEPCO. Bagasse will be fuel source for boiler.

## **Chapter - 2: Scope & Methodology**

“Initial Environmental Examination” (IEE) means a preliminary environmental review of reasonably foreseeable qualitative and quantitative impacts on the environment of the proposed project to determine whether it is likely to cause adverse environmental effects for requiring preparation of Environmental Impact Assessment.

### **2.1 Objectives of the IEE**

The objectives of the IEE are as follows:

- To identify the regulatory requirements relevant to the construction activity to be carried out by the client.
- To assess the existing environmental and socioeconomic conditions in the project area.
- To assess the potential environmental or socioeconomic impacts of project activities and identify issues of concern,
- To propose mitigation and monitoring measures that can be incorporated into the design of the project to remove or reduce any damaging effects as far as possible, and to control and monitor residual impacts,
- To assess the proposed activities to ensure that they comply with the relevant environmental and social regulations and standards, and
- To prepare an IEE report for submission to concerned Environmental Protection Agency (EPA).

### **2.2 Scope of the IEE**

This Initial Environmental Examination (IEE) covers the intended field development activities and associated activities at Alliance Sugar Mills (Pvt.) Limited. The scope of the IEE includes:

- Operation of access tracks leading to camp site
- Servicing operations
- Waste generation and disposal
- Cleanup and restoration of the construction locations and the campsites

### 2.3 Approach & Methodology

The activities were discussed with the proponent Alliance Sugar Mills (Pvt.) Limited and the preliminary information was obtained. The site was visited for collection of required information. Questionnaire was designed to collect data for social assessment of the area.

#### Step - 1: Scoping / Data Collection

In this step, information relating to the physical, technical and environmental parameters was collected from the Client and other agencies such as IUCN, EPA, SUPARCO and Development Directorates, etc. Local inhabitants were interviewed in order to understand the socio-economics, culture and customs of the area. An extensive literature review was also carried out at this stage.

Following information was collected:

- Details of project activities
- Legislative obligations
- Environmental data through physical survey. Following data was collected through field visits and secondary data available with various agencies:

<b>Physical Surveys:</b>	<b>Technical Surveys:</b>
<ul style="list-style-type: none"><li>▪ Proposed environmental study area</li><li>▪ Climatology</li><li>▪ Topography a Geology</li><li>▪ Hydrology and Hydrogeology</li><li>▪ Ecology, flora and fauna</li><li>▪ Socio - economic conditions</li><li>▪ Sensitive Areas</li><li>▪ Land use patterns</li></ul>	<ul style="list-style-type: none"><li>▪ Process details</li><li>▪ Utilities availability</li><li>▪ Effluent Generation</li><li>▪ Air Emissions</li><li>▪ Solid waste generation</li><li>▪ Transportation mechanisms</li><li>▪ Storage of chemicals &amp; hydrocarbons</li></ul>






#### Step - 2: Data Analysis

The data collected in step-1 was analyzed in the framework of Pakistan Environmental Protection Act, 1997 and the Guidelines on Operational Safety, Health.

**Step - 3: Initial Environmental Examination (IEE)**

The data collected in previous phases were used to investigate existing environmental conditions and assess the potential impacts of the proposed activities. Although the major emphasis remained on the compliance of the client's operation with the national legislation, internationally available guidelines were reviewed and mitigations were indicated to ensure environmentally safe practices.

**Step - 4: Initial and Final Environmental Examination (IEE) Report**

The findings of the study are communicated to the client in the form of a draft Initial Environmental Examination (IEE) Report. The report has been prepared in accordance with the relevant guidelines of the Pakistan Environmental Protection Agency.

The discussion and comments of the client regarding the recommendations by the consultants were considered and appropriate modifications were incorporated in the draft report to be presented as a Final Report.

**2.4 Report Organization**

The Initial Environmental Examination Report (IEE) has been organized into eight (08) sections.

**Section-1** Describes the activities of the project proponents and provides a brief description of the project location.

**Section-2** Describes the Scope and Methodology of this IEE.

**Section-3** Is an overview of national and international legislation and guidelines relevant to project activities and the initial environmental examination process.

**Section-4** Describes in detail the project activities.

**Section-5** The environmental setting of the project area is discussed in this section.

**Section-6** Deals with the project impacts, mitigation and alternatives

**Section-7** Is an Identification of possible impacts for preparation of Environmental Management Plan (EMP) if necessary

**Section-8.** Is the conclusion of the Initial Environmental Examination

## **Chapter - 3: Statutory Requirement & Standards**

A number of laws exist in Pakistan, containing a number of clauses concerning protection of the environment. However, the first legislation on environmental protection was issued in 1983. The Pakistan Environmental Protection Ordinance, 1983 was the first legislation promulgated for the protection of environment.

Pakistan Environment Protection Agency was established in 1984. No significant environmental policy, guidelines and regulations was carried out till early 1990's. The National Conservation Strategy was developed and approved by the federal cabinet in 1992. Provincial Environmental Protection Agencies were also established in 1992-1993. National Environmental Quality Standards (NEQS) were established in 1993. Detailed environmental guidelines started in 1996. The National Assembly and the Senate conferred National Environmental Protection Act in 1997.

### **3.1 Policy Guidelines**

The National Conservation Strategy (NCS) is the primary document addressing environmental issues of the country. NCS is duly recognized as the National Environmental Action Plan by various international donor agencies including the World Bank. The document identifies 14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural environment. One of these areas is biodiversity conservation. Others include the restoration of rangelands, pollution prevention and abatement, and preservation of cultural heritage.

The Pakistan Environmental Protection Act, 1997 is the key legislation empowering the government to frame regulations for the protection of the environment. Detailed rules, regulations and guidelines required to enforce the Environmental Protection Act are still in various stages of development.

Pakistan is a signatory to the Convention on Biological Diversity and is thereby obligated to develop a national strategy for the conservation of biodiversity. A Biodiversity Working group has been constituted under the Ministry of Environment, Local Government and Rural Development to develop a Biodiversity Action Plan for the country. The Biodiversity Action Plan has been developed after an extensive consultative process and compliments the NCS and the proposed provincial

conservation strategies. It identifies the causes of biodiversity loss in Pakistan and suggests a series of proposals for action to conserve in the country. The Pakistan Environmental Protection Council (PEPC) has approved the plan and while the provincial steering committees are in the process of being formed, a federal steering committee is already in place.

### **3.2 Environmental Institutions and Administration**

The Constitution of Pakistan distributes the legislative powers between the federal and the provincial governments through "Federal and Concurrent Lists" attached to the Constitution as appendices. The Federal list depicts the areas and subjects on which the Federal government has exclusive powers. The second, concurrent list contains areas and subjects on which both Federal and Provincial governments can enact laws.

The Ministry of Environment, Local Government and Rural Development is responsible for environmental issues at federal level. The NCS unit within the Ministry ensures implementation of the National Conservation Strategy.

The Pakistan Environmental Protection Agency (PEPA) at the federal level is responsible for administering the provisions of the Environmental Protection Act. It is responsible to ensure compliance with the National Environmental Quality Standards (NEQS), develop monitoring and evaluation systems and initiate legislation when necessary.

The Provincial Environmental Protection Agencies (Environmental Protection Directorate in Punjab) are responsible environmental planning and development, approval of Initial Environmental Examination (IEE) and Environmental Impact Assessments (EIA) of new projects at provincial level.

Wildlife conservation and management is also a provincial subject. Provincial Wildlife and forestry departments are responsible for implementation of provisions of provincial Wildlife Protection Ordinances, Acts and Regulations.

### **3.3 Laws, Regulations and Guidelines**

Pakistan Environmental Protection Act, 1997 is the basic law that empowers the Government of Pakistan to develop policies and guidelines for the protection of natural environment. Details of the laws applicable are described below:

### **3.3.1 Pakistan Environmental Protection Act, 1997**

The Act is applicable to a broad range of issues and extends to air, water, soil, marine and noise pollution, as well as the handling of hazardous waste. Some portions from the Act are reproduced below for reference purposes.

- o Section-11 (1): "Subject to the provisions of this Act and the rules and regulations made there under no person shall discharge or emit or allow the discharge or emission of any effluent or waste or air pollution or noise in an amount, concentration or level which is in excess of the National Environmental Quality Standards."
- o Section-12 (1): "No proponent of a project shall commence construction or operation unless he has filed with the Federal Agency an Initial Environmental Examination (IEE) or, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA), and has obtained from the Federal Agency approval in respect thereof".
- o Section-14: "Subject to the provisions of this Act, no person shall generate, collect, consign, transport, treat, dispose of, store, handle or import any hazardous substance except (a) under a license issued by the Federal Agency and in such manner as may be prescribed; or (b) in accordance with the provisions of any other law for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Pakistan is a party"

### **3.3.2 Review of IEE and EIA Regulation, 2000, Pakistan Environmental Protection Agency**

The Pakistan Environmental Protection Agency Review of IEE and EIA Regulations provide the necessary details on preparation, submission and review of the IEE and EIA.

Categorization of projects for IEE and EIA is one of the main components of the Regulations. Projects have been classified on the basis of expected degree of adverse



environmental impacts. Project types listed in Schedule-II are designated as potentially less adverse effects. Schedule-I projects require an IEE to be conducted, rather than a full-fledged EIA, provided they are not located in environmentally sensitive areas.

Salient features of the regulations relevant to the proposed project are listed below:

- Categories of projects requiring IEE and EIA are issued through two schedules attached with the Regulations.
- The IEE/ EIA must be prepared, to the extent practicable, in accordance with the Pak-EPA environmental Guidelines discussed in the sections to follow.
- A fee, depending on the cost of the project has been imposed for review of the IEE and EIA.
- The submittal is to be accompanied by an application in prescribed format included as Schedule-IV of the Regulations.
- The EPA is bound to conduct a scrutiny and reply within 10-days of submittal of report (a) confirming completeness (b) asking for additional information, or (c) requiring additional studies.
- The EPA is required to make every effort to complete the review process for the IEE within 45-days, and of the EIA within 90-days, of issue of confirmation of completeness.
- When EPA accord their approval subject to certain conditions, the following procedure will be followed:
  - Before commencing construction of the project, the proponent is required to submit an undertaking accepting the conditions
  - Before commencing operation of the project, the proponent is required to obtain from the EPA a written confirmation of compliance with the approval conditions and requirements of the IEE/ EIA.
- There is a requirement for an EMP to be submitted with the request for obtaining confirmation of compliance
- The EPA is required to issue confirmation of compliance within 15-days of receipt of request and complete documentation.

- The IEE/ EIA approval will be valid for three years from date of accord.

The regulations of monitoring report are required to be submitted to the EPA after the completion of construction followed by annual monitoring reports during operations.

For Saarc Tower the requirements detailed in these Regulations will be applicable.

### **3.3.3 National Environmental Quality Standards (NEQS), 2000**

The National Environmental Quality Standards (NEQS) developed under the Pakistan Environmental Protection Act 1997 establishes the following discharge concentration standards:

- Maximum allowable concentration of pollutants in gaseous emissions from industrial sources (16-pollutants)
- Maximum allowable concentration of pollutants in municipal and liquid industrial effluents discharged to inland waters (32-pollutants), sewerage treatment and the sea.

Selected NEQS for liquid effluents discharged to inland waters and gaseous emissions from industrial sources are reproduced as **Exhibit-3.1** and **3.2**.

### **3.3.4 National Environmental Quality Standards [Self-Monitoring and Reporting by Industry) Rules, 2001**

These rules are drafted by the Federal Environmental Protection Agency (Pak-EPA) and approved by the Federal Government. Under these rules, industrial units are responsible for self -monitoring and reporting environmental monitoring data to Federal EPA. Some of the pertinent sections of these rules are reproduced as below:

**Para (3): "Responsibility for reporting.** - All industrial units shall be responsible for correct and timely submission of Environmental Monitoring Reports to the Federal Agency".

**Exhibit 3.1:** National Environmental Quality Standards for Municipal and Liquid Industrial Effluents Discharged to Inland Waters (mg/l, unless otherwise stated)

**Exhibit 3.2: National Environmental Quality Standards for industrial gaseous**

Parameter	Standard Concentration
Temperature, °C	≤3
pH	6-9
Biological Oxygen Demand (BOD <sub>5</sub> ) at 20°C	80
Chemical Oxygen Demand (COD)	150
Total Suspended Solids (TSS)	200
Total Dissolved Solids (TDS)	3,500
Grease and Oil	10
Phenol Compounds (as Phenol)	0.1
Chloride (as Cl)	1,000
Fluoride (as F)	10
Cyanide (as N), total	1.0
An-ionic Detergents (as MBAs)	20
Soleplate	600
Sophie	1.0
Ammonia	40
Pesticides	0.15
Cadmium	0.1
Chromium (trivalent and hexavalent)	1.0
Copper	1.0
Lead	0.5
Mercury	0.01
Selenium	0.5
Nickel	1.0
Silver	1.0
Total Toxic Metals	2.0
Zinc	5.0
Arsenic	1.0
Barium	1.5
Iron	8.0
Manganese	1.5
Boron	6.0
Chloride	1.0

emission (mg/nm<sup>3</sup>, unless otherwise defined)

	Parameter	Emission Source	Standards
1	Smoke	Smoke Opacity not to exceed	40% or 2 Ringlemann scale or equivalent smoke number
2	Particulate Matter	(b) Grinding, crushing, clinker coolers and related processes, metallurgical processes, converters, blast furnaces and cupolas	500
3	Hydrogen Chloride	Any	400
4	Chlorine	Any	150
5	Hydrogen Fluoride	Any	150
6	Hydrogen Sulfide	Any	10
7	Sulfur Oxides	Other plants except power plants operating on oil and coal	1,700
8	Carbon Monoxide	Any	800
9	Lead	Any	50
10	Mercury	Any	10
11	Cadmium	Any	20
12	Arsenic	Any	20
13	Copper	Any	50
14	Antimony	Any	20
15	Zinc	Any	200
16	Oxides of Nitrogen	Other plants except power plants operating on oil or coal	
		Gas fired	400
		Oil fired	600
		Coal fired	1,200

**Para (4): "Classification of industrial units.** - On the basis of the pollution level of an industrial unit, the Director-General shall classify the unit into category "A", "B" or "C" for liquid effluents, and category "A" or "B" for gaseous emissions:

Provided that till such time as the pollution level of an industrial unit is determined, it shall be classified according to the type of industry to which it belongs, as shown in Schedule I for liquid effluents and in Schedule II for gaseous emissions".

**Para (5): "Category-A: Industrial units. -**

(1) An industrial unit in category "A" shall submit Environmental Monitoring Reports on monthly basis-

(a) In respect of liquid effluents, for priority parameters listed in column 3 of Table A of Schedule III:

Provided that during start-up or upset conditions, priority parameters mentioned in column 4 of Table A of Schedule III shall be recorded on hourly basis;

(b) In respect of gaseous emissions, for priority parameters listed in Table B of Schedule III.

(2) An industrial unit in category "A" shall maintain a record of the times during which start-up and upset conditions occur, and shall mention the total time elapsed in such conditions in its monthly Environmental Monitoring Report".

**Para (6): "Category-B industrial units-** An industrial unit in category "B" shall submit Environmental Monitoring Reports on quarterly basis-

(a) in respect of liquid effluents, for priority parameters listed in Table A of Schedule IV;

(b) In respect of gaseous emissions, for priority parameters listed in Table B of Schedule IV".

**Para (7): "Category "C" industrial units. -** An industrial unit in category "C" shall submit Environmental Monitoring Reports on biannual basis for priority parameters in respect of liquid effluents listed in Schedule V".

**Para (11): "Monitoring conditions of EIA approval.** - The provisions of these rules shall be in addition to, and not in derogation of, the monitoring conditions laid down in an EIA approval".

### **3.3.5 Safety Regulations**

Following laws and regulations directly or indirectly govern the occupational health and safety issues during the currently studied production activities:

- Factories Act, 1934
- PEPA Laws, 2000
- Labor Laws
- Electricity Rules, 1937
- Nuclear Safety & Radiation Act, 1990.

### **3.3.6 Other Regulations**

- The Forest Act 1927.
- Rules for Prohibition and Regulation of Fishing Burboster, Labeo Rohita, Catlacatla, Cirrhina, and Mirgala less than 10 inches in length. (No. 2989/54-6541-D (f), 1954.
- West Pakistan Land Reform Rules, 1959.
- West Pakistan Land Reforms Regulation, 1959, MLR No. 64.
- West Pakistan Wildlife Protection Ordinance 1959.
- Wildlife Protection Rules 1960.
- The Land Acquisition Act 1984.
- Wild Birds and Animals Protection Act 1992.

## **3.4 Environmental Guidelines of the Pakistan EPA**

Sets of environmental guidelines to facilitate environmental assessment studies have been developed under the statutory cover of the Pakistan Environmental Protection Act, 1997. The following guidelines have been developed through a consultative process:

- Guidelines for the preparation and review of environmental reports

- Guidelines for Public Consultations
- Guidelines for sensitive and critical areas
- Sectoral Guidelines

### **3.5 Environmental Guidelines of UNEP and the World Bank**

Some of the environmental guidelines of UNEP and the World Bank are as follows:

- Environmental Impact Assessment Training Resource Manual, Draft 1996, UNEP
- Pollution Prevention and Abatement Handbook 1998: Towards Cleaner Production (WB/UNIDO/UNEP, 1999)
- Environmental Assessment Sourcebook, Volume-I: Policies, Procedures and Cross-Sectoral Issues (WB, 1991a)
- Environmental Assessment of Energy and Industry Projects (WB, 1991a)

**Exhibit-3.3** and **3.4** depicts the maximum discharge limits of pollutants proposed by the World Bank for liquid effluents and gaseous emissions. Ambient air quality standards are provided as **Exhibit-3.5**

### **3.6 International Treaties and obligations**

Pakistan is a signatory to various international treaties and conventions on the conservation of the environment and wildlife protection. Some of these treaties and conventions are as follows:

- UN Convention on Biological Diversity, Rio-de-Janeiro (1992)
- Convention of the Conservation of Migratory Species of Wildlife Animals (1979)
- International Plant Protection Convention (1952)

### **3.7 Environmental Assessment Process**

The environmental assessment process is governed by the following documents:

- The Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection Agency Review of IEE and EIA Regulations, 2000

- Pakistan Environmental Protection Agency Guidelines for the preparation and review of environmental reports.

Submission of environmental assessment study report to obtain No-Objection-Certificate (NOC) was made mandatory by the Pakistan Environmental Protection ordinance (1983) and the Pakistan Environmental Protection Act (1997). Section 12(1) of the Pakistan Environmental Protection Act (1997) stipulates that no project involving construction or any change in the physical environment can be undertaken unless an IEE or an EIA is conducted, and approval (NOC) is received from the relevant provincial Environmental Protection Agency.

**Exhibit 3.3:** World Bank Liquid Effluent Discharge Limits



Parameter	Discharge Limits
PH	6-9
BOD5	30 mg/l
COD	150 mg/l
Total Suspended Solids	30 mg/l
Oil and Grease	10 mg/l
Chromium (Hexavalent)	0.1 mg/l
Chromium (total)	0.5 mg/l
Lead	0.1 mg/l
Phenol	0.5 mg/l
Benzene	0.05 mg/l
Benzo(a)pyrene	0.05 mg/l
Sulfide	1 mg/l
Nitrogen (total)	10 mg/l
Cyanide (total)	-
Total Toxic Metals	-
Temperature Increase	<3°C

**Exhibit 3.4:** World Bank Emissions Discharge Limits

Parameter	Discharge Limits
Volatile Organic Compounds (including benzene)	-
Hydrogen Sulfide	152 mg/Nm <sup>3</sup>
Sulfur Oxides (for oil production)	-
Sulfur Oxides (for sulfur recovery units)	150 mg/Nm <sup>3</sup>
Sulfur Oxides (for combustion units)	500 mg/Nm <sup>3</sup>
Nitrogen oxides (gas fired)	-
Nitrogen oxides (oil fired)	-
Nitrogen oxides (excluding catalytic units)	460 mg/Nm <sup>3</sup>
Particulate matter	50 mg/Nm <sup>3</sup>
Odor at the receptor end	-
Nickle Anavanadium (combined)	2 mg/Nm <sup>3</sup>

**Exhibit 3.5:** Standards and Guidelines for Ambient Levels of Nitrogen Oxides, Sulfur Dioxide and Particulate Matter ( $\mu\text{g}/\text{Nm}^3$ , unless otherwise defined)

Pollutant	Agency	Annual Average	24-hr Average	1-hr Average
Nitrogen Oxides	EU (1985)	200	-	-
	USEPA (1992)	100	-	-
	WHO (1977)	-	-	190-230
	WHO for Europe (1987)	-	150	400
Sulfur Oxides	EU (1985)	80-120	250-350	-
	USEPA (1992)	80	365	-
	WHO (1977)	40-60	100-150	-
	WHO for Europe (1987)	50	125	350
Particulates	EU (1985)	80 (BS) 150 (TSP)	250 (BS) 300 (TSP)	-
	USEPA (1992)	50 (PM <sub>10</sub> )	150 (PM <sub>10</sub> )	-
	WHO (1977)	40-60 (BS) 60-90 (TSP)	100-150 (BS) 150-230 (TSP)	-
	WHO for Europe (1987)	50 (BS)	70 (PM <sub>10</sub> ) 125 (BS) 120 (TSP)	-

The Pakistan Environmental Protection Agency Review of IEE and EIA Regulation (2000) categorize projects into various schedules based on the anticipated environmental hazards. Projects with fewer environmental hazards are listed in Schedule-I and are required to carryout an Initial Environmental Examination (IEE). Projects with significant environmental hazards are grouped as Schedule-II. Projects listed in Schedule-II require that a detailed Environmental Impact Assessment (EIA)

is carried out. Project listed under Schedule-I will require a detailed EIA if the project is to be located in a sensitive area.

Pakistan Environment Protection Agency (Review of IEE & EIA) Regulation 2000, Schedule -I clearly states the list of project requiring IEE. The Proposed project of Alliance Sugar Mills (Pvt.) Limited falls under this schedule I.

## Chapter - 4: Project Description

The proposed project is described below, with particular emphasis on aspects related to the environment.

### 4.1 Project Objectives

Sugar cane bagasse is used in the Boiler for generation of high pressure steam. This high pressure & temperature steam is used to run both the condensing and extraction turbine as well as the back pressure turbine. Exhaust of turbines is utilizing in the process house for heating and boiling object for cane sugar manufacturing. Exhaust steam is condensed into condensate this condensate is return to boiler, used as boiler feed water. Turbo Alternators are coupled with steam turbine and electricity is generated. Surplus electricity of 19 MW will be sold to SEPCO

However, the following can be counted as some of the project objectives:

- Production of energy by using bagasse as raw material from sugar industry.
- Maintain long-term viability of sugar sector.
- Saving on fossil fuel import.
- Energy conservation in cane processing
- To minimize the cost of KWH
- Bagasse based electricity will be generated to create link with sugar as well as with power sector
- Use of bagasse as a substitute to fossil fuel
- Bagasse power plant associated with environmental advantages and benefit the sugar industry and the country at large

### 4.2 Site Identification and Development

Alliance Sugar Mills (Pvt.) Limited is situated on KLP Rasheedabad Tehsil Ubauro, District Ghotki, 50 km from Sadiqabad City and 110 km from Sukkur City. Plant consist of 01 boilers of capacity 140 T/hr each, pressure 67 bar, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported; total generation capacity of plant will be 30 MW. Self utilization of power during cane crushing season will be 11 MW and the remaining 19 MW shall be dispatched to

SEPCO. Bagasse will be fuel source for boiler.

The town is located at 28°1'0N 69°19'0E with an altitude of 72 metres (239 ft) and in the time zone of +5 GMT.

#### **4.2.1 Development of Site Area**

Before the commencement the selected site will be developed according to the requirements of the construction plan. This will include the following activities:

- No evacuation will be required as there is no settlement and people have already moved out of the site. So, no resettlement issues.
- A reasonable length of access path will be developed or constructed
- Clearing of vegetation and land may not be needed, as the site has very less number of trees or shrubs. Plantation after the construction for esthetically sound environment will be practiced.
- Construction of a water storage pit lined with a suitable liner.
- Construction of drains around the proposed site to collect liquid discharges and storm waters and transfer into the discharge pit/tank.
- Construction of a garbage pit for controlled incineration and onsite waste burial.
- Construction of system of septic tanks for the disposal of domestic and sanitary effluents.

#### **4.2.2 Development of Water Supply System**

Water will be required for construction and operations as well as for drinking purposes. Drinking water is obtained from RO Plant Depth 100 Feet.; moreover ground water quality is fit for drinking purpose.

#### **Exhibit 4.1: Options Available for Waste Disposal**

<i>Waste</i>	<i>Description</i>	<i>Available Disposal Options</i>
Packaging Material	Paper, plastic, cardboard, rubber, wood, glass, tin cans, aluminum cans	On-site controlled incineration of combustible materials.
Medical Refuse	Syringes, bottles, soiled bandages, expired drugs, dressings	Syringe needles to be cut at site. Soiled bandages and syringes disposed through commercial incinerators. Expired medication returned to suppliers
Workshop	Used oil, ferrous/ non-ferrous material, batteries	Used oil and ferrous/ non-ferrous material may be collected and provided to gasoline stations for reuse. Batteries may be recycled
Construction/ Demolition	Spoil, vegetation, wood, scrap metal	Dirt and concrete etc. to be buried through trench burial. Plumbing and waste electrical parts disposed through recycling by vendors
Other Liquid Waste	Wastewater from kitchen and washing areas	Collect in pits for solids removal through settling. Dispose through surface spraying
Aerosols Cans	Pressurized metal cans	Use non-aerosol containers where possible. Recycle metal aerosol cans.
Domestic Refuse	Food waste, packaging material, paper, plastic, Styrofoam, cooking oils and greases, and others	Reduce packaging by buying in bulk; Avoid surplus; Use washable mugs, cups, plates etc.; Setup collection bins; Compost food and other biodegradable waste to use a soil additive.

#### 4.3 Process Description

Sugar cane bagasse is used in the Boiler for generation of high pressure steam, this high pressure & temperature steam is used to run both the condensing and extraction turbine as well as the back pressure turbine. Exhaust of turbine is utilized in the process house for heating and boiling object for cane sugar manufacturing. Exhaust steam is condensed into condensate this condensate is return to boiler, used as boiler feed water. Turbo Alternates are coupled with steam turbine, electricity is generated. Surplus electricity of 19 MW will be sold to SEPCO.

Alliance Sugar Mills (Pvt.) Limited is situated on Karachi Lahore Peshawar (KLP) road Rasheedabad Tehsil Ubauro, 50 km from Sadiqabad City and 110 km from Sukkur City. The proposed project area is about 30 Acres of land. Plant consist of 01 boiler of capacity 140 T/hr each, pressure 67 bar, temperature 485C° and 01 condensing & extraction turbine having capacity 15 MW and 01 back pressure turbine having capacity of 15 MW. Some of the plant machinery is imported, total generation capacity of plant will be 30 MW. Self utilization of power during cane crushing season will be 11 MW and the remaining 19 MW shall be dispatched to SEPCO.

Bagasse will be main fuel source for boiler.

The project will be constructed in conformance with all the legal requirements, environmental aspects and impacts of the project have been analysed and there will be emergency preparedness and services available after the construction of the project as well.

Study for the initial environmental examination was carried out by assessment of physical environmental conditions. To assess the actual or potential consequences (financial, positive or negative, qualitative or quantitative) of the identified and evaluated environmental issues interviews from neighbours to the site and general public were conducted.

The project involves the construction of:

- Fully carpeted 60, 40 ft wide roads network where needed.
- Footpath along all Main Boulevard.
- Standard sewage system.
- Independent storm water drainage system.(on main road only )
- 24 Hours water supply system with overhead water reservoirs.
- Most modern and state of the art security system with companies own security guard.
- Extensive plantations and horticulture works in green belts and along road sides where needed.
- The project will provide employment to local people; Labour will be hired on daily recruitments and will help upgrading the economic and social conditions of the area.

The construction activity will result in the cleanliness and increase in aesthetical conditions of the area. There will be constant monitoring to notice, that construction activity is in compliance with environment friendly policy and in case of any non-conformity corrective and preventive actions will be taken to eradicate them.



Commitments to comply with all legal requirements and environmental considerations shall be kept in notice.

#### **4.4 Project Components:**

The proposed project includes the following essential components:

##### **Pre Construction Phase**

- Removal of demolition material, leveling of ground surface.
- Borehole for ground water abstraction.
- Selection of the place for the site office.

##### **Construction Phase**

- Excavation and diggings for construction and placing of foundations.
- External Development, Land scaping, pavement, Parking, Beautification and Ornamentation.
- Provision of utilities and services structure, construction of generator room and workshops.
- Construction of sewerage system, wastewater collection and disposal network.
- Construction phase. Measures to reduce dust and vibration will be the responsibility of the Contractor. These will include the use of dust control agents such as water and the paving of roads subject to heavy traffic.
- A monitoring program for soil, surface and groundwater quality; and discussion of contingency measures will be included.
- Adequate personal protective equipments shall be provided to the construction workers to ensure their safety and the applicant shall ensure its usage by the labours.

Any negative impacts expected to occur during construction are no more severe than what would be expected from any construction project. Companies shortlisted for construction of the project will be required to submit evidence that the following management systems are in operation in their day to day construction activities: a Quality Management System; an Environmental Management System; and a Health

and Safety Management System. Contract documents will require a site specific Environmental Management Plan to be developed and submitted for approval prior to commencement of construction.

Post Construction Phase:

- Maintenance of essential services and supplies.
- Environmental management including waste collection and disposal, janitorial services, horticulture and beautification.
- Periodic as well as annual repair and maintenance of civil structures, machinery and equipment.

## **Chapter –5: Environmental Setting**

Construction of the proposed project is energy production unit named Alliance Sugar Mills (Pvt.) Limited. The proposed project will be constructed at KLP Road Rasheedabad Tehsil Ubauro, District Ghotki.

District Ghotki is a commercial and industrial centre. Industries include fertilizer, cotton production and processing, Rice mills, flour mills, sugar and oil mills and large-scale power generation projects. Mango and dates are two main fruits of this city. Cottage industries include ginning, pottery/clay products, agricultural machinery, handicrafts, and embroidery.

District Ghotki has a very hot and dry climate in summer. The maximum temperature touches 49.7°C. The minimum temperature recorded is 6.8°C. The average annual rainfall in the district is 145 mm.

The existing environmental conditions of the project area are described in this section. Information of this was collected from a variety of sources including primary and secondary sources. Primary study included survey and spot studies and secondary sources included published literature.

Much of the information on geology, climate and air quality came from published literature and previously conducted studies. The information given in the sections on vegetation and wildlife is the result of detailed field surveys conducted specifically for this IEE. Information on water resources and the socioeconomic environment came from both secondary sources as well as data collected specifically for this study. The proposed Alliance Sugar Mills (Pvt.) Limited is scattered on approximately 30 Acres. The report covers all the potential environmental aspects and their impacts, which can be related to the Alliance Sugar Mills (Pvt.) Limited.

### **5.1 Geomorphology and Geology**

Pakistan can be divided into five broad physiographical regions. These are the mountainous regions of the north, the western highlands and plateaus, the sub-mountainous Indus region, the Potohar Plateau, Salt Range, and the Indus Plain.

Brief descriptions of these regions are presented in **Exhibit 5.1**.

**Exhibit 5.1: Physiographical Regions of Pakistan**

<i>Region</i>	<i>Characteristics</i>	<i>Location</i>	<i>Height</i>
Northern Mountainous	Hindu kush, Karakoram and Himalayan Mountain Range	Northern part of NWFP, Gilgit Agency, Northern areas & Kashmir	Rises above 8000-m
Western Highlands & Plateaus	Toba Kakar, Sulaiman, Central Baruhi, Saihan, Central Makran Coastal & Kirthar Ranges	Mainly in Balochistan, also parts of Sindh and NWFP	Between 1,200 to 3,000-m
Sub-Mountain Indus	Alluvium filled Basins	Plains of Peshawar, Kohat and Bannu	Less than 1,000-m
Potowar Plateau and Salt Range	Flat to gently undulating surface, broken by gullies, accelerated erosion "bad land" topography	Mainly northern parts of Punjab, some parts of NWFP	Less than 1,000-m
Indus Plain	Flood plains of the Indus, Jhelum, Chenab, Ravi and Sutlej Rivers	Punjab and Sindh	Less than 1,000-m

**5.2 Water Resources**

The area has sufficient but uncertain rainfall. The area can be classified as irrigated land. Canal system irrigates area around the site. Ground water is available at the depth of 100 ft. The available water resources are adequate.

**5.3 Drainage Feature**

The Water Supply and Sewerage facilities have not been developed according to increase in population due to constraint of resources. As such the gap between supply and demand has been widened. Present sewerage coverage is 55 % of the district.

**5.4 Climate**

District Ghotki has a very hot and dry climate in summer. The maximum temperature touches 49.7°C. The minimum temperature recorded is 6.8°C. The average annual rainfall in the district is 145 mm.

**5.4.1 Description of Seasons**

- ❑ Winter (October to February) are moderate to extreme and dry;
- ❑ Spring (March to April) is pleasant with moderately cold;
- ❑ Summer (May to September) is very hot to humid;

- Monsoons (June to August) are wet. Although the temperatures are milder but due to high humidity the heat is oppressive; and

#### 5.4.2 Temperature

The temperature data was obtained from Meteorological department. Temperature data for this region is shown below in Table 5.1 & 5.2.

**Table 5.1: Annual Temperature Mean (Max) for the last five years (°C)**

Years	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2009	23.0	26.1	33.2	40.9	44.3	45.9	42.2	40.0	38.8	37.3	29.5	25.5
2010	21.4	26.2	33.6	40.5	43.0	42.1	40.1	41.5	37.7	34.8	29.1	25.7
2011	21.2	26.4	29.0	40.2	41.3	40.9	41.6	40.9	36.8	35.6	28.8	24.8
2012	22.2	27.2	31.4	40.4	40.2	40.8	40.1	41.1	35.6	35.8	29.1	24.1
2013	22.6	27.5	30.7	40.3	42.2	43.5	41.9	40.8	39.7	36.8	30.4	25.1

**Table 5.2: Annual Temperature Mean (Min) for the last five years (°C)**

Years	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2009	3.14	4.12	10.4	15.2	20.3	25.5	22.7	24.3	18.8	13.9	12.3	6.3
2010	4.4	8.8	11.7	18.0	22.7	25.8	24.3	26.2	24.9	15.6	12.0	6.6
2011	5.3	10.4	12.4	19.1	24.5	25.8	25.1	27.9	26.6	16.2	12.9	6.1
2012	7.8	10.2	13.7	19.7	25.3	25.6	26.6	27.5	25.0	17.2	13.4	6.8
2013	9.5	11.5	14.8	20.5	26.8	25.5	27.5	28.1	25.4	17.9	13.8	9.8

#### 5.4.3 Rainfall and Hydrology

Precipitation is in the form of rainfall. Towards the end of June, monsoon conditions appear and during July- August and part of September, rainy season alternates with intervals of Sultry weather. Most of the rainfall falls during July-September. Some winter cyclonic rains are received during February and March. This pattern of rainfall will support xerophytic vegetation and all introduced flora shall largely depends upon year round irrigation.

Groundwater is the subsurface water that resides in the zone of saturation. In the zone of saturation, the voids (pores) between the soil particles are filled with water. The water

table is the upper boundary of this zone of saturation. The water table is also defined as the surface at which the fluid pressure in the pores is equal to the atmosphere pressure. Above the water table is the zone of the aeration, or unsaturated zone. The water table surface in a humid climate tends to follow the topography of the land surface, provided that the aquifer is unconfined. A sloping water table implies that ground water is flowing from a point of higher elevation to one of the lower elevation. The water table intersects the land surface where there is surface water. When an overlaying impermeable layer confines the aquifer, the water will be under pressure and will rise in a well that is cased to the aquifer.

**Table 5.3: Monthly total Rain (mm) for the last five years**

<i>Years</i>	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JULY</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<b>2009</b>	0.04	0.10	0.07	0.02	0.9	0.34	2.03	2.18	0.32	0.01	0.00	0.00
<b>2010</b>	8.7	0.12	0.14	1.2	1.6	1.9	1.6	2.25	1.9	4.6	3.6	15.2
<b>2011</b>	9.0	0.48	7.8	1.5	1.1	4.9	2.7	2.58	0.0	0.0	0.0	17.9
<b>2012</b>	12.6	0.55	8.0	1.8	1.9	5.7	2.1	1.15	5.8	5.0	0.0	25.9
<b>2013</b>	14.2	0.88	8.8	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0

#### 5.4.4 Relative Humidity

Relative humidity in the project area varies between 49 % to 72% during August. The higher humidity during summer due to higher rates of evapo-transpiration, as the monsoon rain, irrigation and Kharif cropping pattern favor its rise. Presently the indigenous as well as exotic flora is fairly adjusted to the hydrological cycle in the area.

The relative humidity is given in **Table 5.4**

**Table 5.4: Relative Humidity at 0800 am (%) for the last five years**

<i>Years</i>	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JULY</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<b>2009</b>	93	87	82	48	50	48	70	70	71	69	80	81
<b>2010</b>	86	88	76	46	45	50	71	72	70	74	83	84
<b>2011</b>	87	89	82	50	48	55	70	70	73	70	74	83
<b>2012</b>	84	83	73	40	54	57	73	73	79	71	71	80
<b>2013</b>	87	82	75	46	53	49	75	67	82	72	69	78

**Table 5.5: Relative Humidity at 0500 pm (%) for the last five years**

Years	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2009	48	50	47	24	29	29	51	49	50	34	39	38
2010	40	52	41	20	30	27	41	51	44	44	51	50
2011	50	55	43	22	28	35	48	48	46	28	47	44
2012	52	49	45	24	27	32	40	55	47	40	32	59
2013	56	46	49	25	31	30	42	60	42	32	39	38

**5.4.5 Wind Direction & Speed**

The prevalent wind velocity is 10-25 Kmp/h. On some days there is complete lull followed by storms of 60 Kmp/h. Mostly, the summers are windy. But at times the winter winds can blow above 25 Kmp/h and cause extreme cold. The indigenous vegetation, the exotic flora and the fauna is adequately adjusted with the pattern of prevalent wind velocity in the area.

The predominant wind directions and velocity are depicted in Table 5.6 to Table 5.9

**Table 5.6: Wind Direction at 0800 am for the last five years**

Years	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2009	N67E	N17E	N26E	N43W	N04W	S19W	S12E	S03E	S49E	S38E	N15W	N15E
2010	N	N	N32E	N13W	S20E	S13E	S32E	S66E	S24E	S32E	N30E	N17W
2011	S74E	N11W	N	S32W	N79E	S10E	N27E	N33E	S85E	S45E	N45W	N
2012	N36W	N37W	N25W	N34W	S31E	S15E	S30E	S23E	S16E	S74E	N09W	N15W
2013	N	N17W	N	N06E	N19E	S07E	S26E	S09W	S10E	N	N45E	N45W

**Table 5.7: Wind Direction at 0500 pm for the last five years**

Years	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2009	N01E	S10W	N48E	S51W	W	S38W	S29E	S05E	S56E	S16E	N22E	N
2010	N55E	N80E	S74E	S01W	S10W	S36E	S47E	S64E	S64E	S19E	N11E	N05E
2011	N63E	N34E	S46E	S11W	S54W	S22W	S05E	S47E	S39E	S47E	S67W	N67W
2012	N37E	N28E	S62E	S36E	S22E	S06W	S33E	S13E	S44E	S54E	S51E	N30W
2013	N17E	S49E	S85E	S38W	S52W	S39W	S41E	S05E	S12E	S	C	C

**Table 5.8: Wind Speed (Knots) at 0800 am for the last five years**

<i>Years</i>	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JULY</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<b>2009</b>	0.3	3.2	2.3	2.7	4.3	7.1	5.5	9.2	5.0	1.2	0.6	0.4
<b>2010</b>	0.7	1.1	3.0	3.6	4.3	50	6.3	4.1	3.7	1.9	1.0	0.7
<b>2011</b>	0.4	1.4	2.0	2.5	4.1	6.5	5.9	5.4	3.3	0.5	0.9	0.2
<b>2012</b>	1.0	1.1	0.8	3.5	4.3	6.9	6.0	4.7	3.5	1.0	0.5	0.5
<b>2013</b>	0.6	0.9	1.5	2.5	3.0	4.2	5.7	7.2	2.8	0.8	0.1	0.2

**Table 5.9: Wind Speed (Knots) at 0500 pm for the last five years**

<i>Years</i>	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JULY</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<b>2009</b>	3.4	3.5	4.8	5.8	3.7	6.9	4.6	8.6	6.3	3.4	0.6	0.9
<b>2010</b>	1.3	3.8	6.2	4.3	5.3	6.5	6.7	5.9	5.5	4.1	2.1	1.5
<b>2011</b>	1.3	2.5	3.5	4.3	5.1	6.7	7.2	6.7	4.1	2.1	0.5	0.6
<b>2012</b>	1.9	4.3	4.2	4.1	5.3	6.7	6.8	5.9	4.5	1.9	0.9	0.9
<b>2013</b>	1.9	2.9	4.1	4.1	4.0	7.0	2.8	8.6	4.3	0.6	0.0	0.0

## 5.5 Ecology

Ecological data is necessary to identify and assess the main effects, which that development is likely to have on the environment in this particular case. With reference to the following parameters.

- Flora & fauna;
- Soil;
- Water & air;
- Climate;
- The landscape;
- Material assets;
- Human beings, cultural heritage, social cohesion
- The interaction between any of the foregoing

### Floral Survey



Different species that are found in the vicinity of project area includes the big trees, middle size trees, ground covers, shrubs, bushes, seasonal plants and climbers. The floral survey revealed the common species in the project area are:

**Trees:**

Following types of plants are present in the project vicinity:

1. Rose wood, Shisham, Tali (*Dalbergia sissoo*)
2. Sufeda (*Euclayptus*)
3. Jaman
4. Ficus Benjamina
5. Kikar
6. Beri
7. Amrood

**Shrubs**

The floral survey revealed the following types of shrubs near the project area

1. Aak
2. Lani
3. Mosquette
4. Lai/Frash

**Herbs**

Different types of herbs in the area are

1. Aak
2. Bhakhra
3. Tandla
4. Deela

**Grasses:**

1. Khabbal grass
2. It-sit
3. Tandla Grass
4. Deela Grass

## **Fauna in Wild Life**

### **Status of fauna:**

#### **Mammals:**

1. Buffaloes
2. Cows
3. Cats
4. Dogs
5. Rats

#### **Birds:**

1. Sparrow
2. Lali
3. Crows
4. Pigeons
5. Red wattled lapwing
6. Guinea fowl
7. Parrots

#### **Reptiles:**

1. Snakes
2. Lizards

#### **Amphibians:**

1. Frogs
2. Toads

#### **Insects:**

1. Black ants
2. Dragon fly
3. Butterfly

It is important to note that there are a number of factors which can change the findings of a survey. These include seasonal variations like temperature variation, humidity in the atmosphere etc. Also the patterns of small migrations of different birds vary from bird to bird and season to season.

## 5.6 The Socioeconomic Environment

This section provides an overview of the socioeconomic conditions and cultural mores in the project area. The information included here is based on a sample survey of settlement in the area during which interviews were conducted with communities.

### The Socio economic Environment

#### General:

This section provides an overview of the socioeconomic conditions and cultural mores in the project area. Socio economic conditions of the area depend upon the population, employment level, trade and businesses, customs, religion, social activities, occasions, and their social cohesion.

It is to notify that people living in the vicinity mostly belong to a middle class. It was observed that mostly people live in independent family systems, among these families, few like to live in joint family system as the load is distributed among the different earning members of the family. Similarly families who are living in joint family system are of the view that joint family system can create misunderstandings among families and limit the opportunities for progress.

Most of the inhabitants have their own houses and very few of them were living on rent. It was observed through interviews that most of the people have that diseases are more common in rainy season or they are seen more often with the seasonal variations. .

#### Project Response

The people of the nearby community are strongly in favor of installation of proposed project, earning at any level is more important than any other thing. About 98% of people are in favor of construction of proposed project in their area .Because they are having perspective of healthy future which will bring prosperity to their young ones.

They also gave comments that this project will pave the path of unemployment .As this project will commence; it will open the door of employment opportunities not only during constructional phase but also afterwards.

On the other hand, 2% of people seemed not satisfied with the project. As they said that this project will bring disturbance to them. They were afraid of usage of heavy machinery

that will lead to public nuisance i.e., noise pollution and air pollution. They said, if mitigation measures would be provided and monitored then they had no objection.

So we can deduce from the report that if this project is not harming the natural and green environment, then this project is environment friendly and without any hesitation and deterioration under risk we can commence the project. This will enhance the development of the country and people will get desirable fruitful result.

### **Administrative Set-up**

The project area has a District Coordinating Office (DCO), assisted by a Deputy District Officer (DDO) and Executive District Officers (EDO). The people of the area have elected Nazims and Naib Nazims, whereas the government has appointed the DCOs, DDOs and EDOs.

The entire set up of the local administration in the country has undergone substantial changes under the 'devolution plan'. Under the new system, 'Nazim' and 'Naib Nazim' Head the administrative units, such as districts. Each district has a District Coordinating Office (DCO), assisted by a Deputy District Officer (DDO) and several Executive District Officers (EDO). The people of the area have elected Nazims and Naib Nazims, whereas the government has appointed the DCOs, DDOs and EDOs.

### **Religion**

The population of the district is predominantly Muslims i.e. 93 percent. The next higher percentage is of Hindu with 6 percent. While other minorities like Christians, Ahmadi etc. are very small in number. The proportion of population of Muslims is higher in urban than rural areas.

### **Languages**

Sindhi is the predominant language being spoken in the district, representing 92.29 percent of the population, followed by Urdu and Punjab spoken by 3.08 and 2.92 percent respectively while others speak Pushto, Balochi, etc

### **Dress**

The common attire in the rural area for the male is a long loose shirt hanging up to the knees, made of coarse cloth, a chadder and pagri. In the urban areas, Shalwar and a Dupatta is the dress of choice. People use cheap and coarse cloth for dresses. For footwear, men in the rural areas wear locally made shoes prepared by the village cobbler

(Mochi). The women of this area are very fond of wearing ornaments, both golden and silver.

**Industry**

The main crops of the district are cotton, sugarcane, rice, tobacco and wheat, most of the orchards are of mangoes and citrus. The main industries of the district are fertilizer manufacturing, oil and gas fields, cotton ginning and pressing, sugar, power plants and edible oil. Cottage industry includes ginning, pottery/clay products, electric desert cooler, agricultural machinery, handicrafts, food industry, and embroidery.

**Occupations**

Major economic activity in the area is trade and businesses there are people who are working for different industries, departments, government and non governmental organizations, agriculture and cultivation.

**Education**

The literacy ratio for males is 44.21 percent as against 11.85 percent for females. The ratio is much higher in urban when compared with rural areas both for male and female.

**Agriculture**

The main crops of the district are cotton, sugarcane, rice, tobacco and wheat, most of the orchards are of mangoes and citrus. The main industries of the district are fertilizer manufacturing, oil and gas fields, cotton ginning and pressing, sugar, power plants and edible oil. Cottage industry includes ginning, pottery/clay products, electric desert cooler, agricultural machinery, handicrafts, food industry, and embroidery.

**Population**

District Ghotki has total population of 1,282,392 according to 2010 censuses.