**Case Study: Organization profile**

(Goodwill Equipment Co Ltd)  
  
GEC Ltd was incorporated in 1999. It started as a trading company in pumps and compressors imported from France. In 2005, the manufacturing facility was set up in Bangalore with an initial investment of Rs 3.5 Crores in plant and machinery. With further augmentation of facilities, the net investment expanded to Rs 7.5 Crores.

The product profile of GEC is as under:

* Centrifugal pumps and Monoblock pumps for water and slurry
* Vertical Turbine pumps
* Submersible pumps
* Sluice Valves
* Foot valves

The customer profile of GEC includes industrial buyers, local government bodies, retail purchases in farming. The slurry pumps are supplied for special applications in the mining and chemical industry.

GEC provides end to end services including installation and commissioning, warranty and AMC based servicing, emergency repairs, site based solutions, customer training. Bundled services are offered to customer together with initial product sales to ensure smooth and continuous operations at customers end.

**Mission Statement of GEC**

We ensure customer delight through customized solutions and innovative products and services. We achieve this by sustaining a positive and participative work culture, engineering excellence and continuous enhancing of technical competencies.

GEC received its ISO 9001 certification in 2005 and have engaged a consultant firm to assist them in maintaining their certification. GEC is currently preparing for TS 16949 certification as some of the pumps are being procured by Tier 2 auto sector companies. The management has also taken an in-principle decision to adopt OHSAS Certification to demonstrate their commitment to employee welfare.

The company’s product base requires frequent design upgradations, that in turn demand advanced technology facilities in manufacturing and infrastructure, as well as for product testing and inspection. Design was initially excluded from the scope of QMS, however now the company is contemplating including it as a part of the QMS

**Production & Testing Facilities**

The main production processes at GEC are:

1. Machining, Assembly, Testing and Painting for Pumps and Valves
2. Rotor assembly (semi-automatic), Stator assembly (fully automatic), painting
3. Pump shaft, Rotor shaft machining

GEC has the following manufacturing areas

* Grinding shop
* Machine shop
* Assembly shop,
* Painting shop,
* Rotor Assembly shop,
* Stator and motor assembly shop

The Company has a fully computerized hydraulic laboratory with 2 closed circuit test stations for pump and foot valves testing. The electrical laboratory is used for type testing of motors and for calibration of electrical meters. It is equipped with Automatic Motor test bench. Routine tests for motors such as insulation resistance, HV, no load tests are performed on line. Dynamic balancing of shaft and impellers is carried out in the machine shop area.

**Marketing and Sales**

GEC has sales and service offices located at Mumbai, Delhi, Kolkata and Ahmedabad to serve the needs of its institutional customers.   
  
In addition, the Company has awarded franchise arrangements for Service Centres at strategic locations.

GEC has 19 % market share in slurry pumps

**Suppliers**

The company has a dedicated set of suppliers for castings, winding wires, bushes and, glands and gaskets, paints, steel bars, cables and electrical and electronic parts. Store items are procured from a list of empaneled suppliers. Outsourced services include non-destructive testing, and heat treatment, when required.

**Manpower**

The total current employee strength of the Company is 115 permanent staff and 35 contract employees working under a labour contract arrangement in the machine shop, packing, stockyard and stores.

All functions including sales, service, manufacturing and quality are manned by qualified and   
experienced engineers in respective ﬁelds.

**GEC Product Range**

**Centrifugal Pumps :**

Applications : Irrigation & drainage, Drinking Water supplies for Town and country, Industrial heavy duty pumps, slurry pumps for corrosive and abrasive liquids, dredge pumps, high temperature pumps

* Capacity Q upto 42 m³/hr (0.41 cusec) Total Head H upto 400 M (1300 ft)
* Discharge Pressure P upto 40 bar (570 psi)
* Temperature T -10° to +140 °C
* Speed upto 2900 rpm

**Vertical Turbine Pumps**

Applications : Irrigation & drainage, Drinking Water supplies for Town and country, Industrial Water Supplies, Lowering of ground water water table on construction site

* Water Lubricated,
* Vertical, Single stage or Multi stage
* Well Diameter D 200 mm to 500 mm
* Delivery size NW 75mm to 200mm
* Capacity Q upto 300 m³/hr Total Head H upto 100 meter
* Speed N upto 2900 rpm
* Motor rating upto 125 HP

**Submersible Pump**

* Applications : Agricultural, Irrigation & drainage. Drinking Water supplies for Town and country, Industrial water Supply
* Well Diameter D 6″ to 14″
* Delivery size NW 50 to 250 mm
* Capacity Q up to 360 m³/hr Total Head H up to 450 meter
* Speed N up to 2900 rpm
* Voltage V 360 to 440 v
* Motor rating up to 250 HP

**Sluice Valves :** Upto 300 mm

**Foot valves:**  Size range 40mm to 150 mm as per IS 10805

**Manufacturing process – 3 phase Induction Motors**

**Rotor (Semi automated)**

Automatic stack selection --- stack height accuracy gauging --- Lamination interlocking ---slot insulation lining---Coil winding 9servo motor drive) ---winding coil injection---end turn forming---lacing---vacuum impregnation --- Oven curing

**Stator Assembly (Fully automated)**

Shaft press---end cover press---commutator press----armature insulation paper inserting---armature winding—commutator welding----wedge inserting— armature testing---ball bearing inserting,

**Rotor / Stator Assembly (Semi-automated)**

**Manufacturing Process pumps:**

**Operations**

Grinding, Surface finishing of castings (Cast iron, Stainless steel) --- Turning of shafts (Carbon steel , stainless steel) --- Turning of impellers --- Facing of pump volute casing,flanges Hydraulic presure testing of pump casing --- Drilling of flanges, base plates --- Boring of bearing housing --- Knurling, slot cutting --- Primer painting --- Bearing fitment--- Assembly ---Gland packing

**Key Equipment:**

1. Model TD 526 Automatic Lathe, 2350 mm, hydraulic chuck
2. CNC Vertical Turning Lathes, table diameter 1800mm, swing diameter 1600mm
3. CNC AUTOMAT TB - 42/60, 3 Axes, 2700 mm
4. ND – DZX Stator automatic production machine assembly line
5. VX 200 CNC Turning Center (accuracy upto 0.010mm/300 mm, repeartable accuracy uptp 0.007 mm
6. CNC Cylindrical Grinder (servo motor driven slide and spindle , anti friction bearing pivot spin
7. FREHNIG Automatic Pump Testing System
8. Lorenz Messtechnik AC-Voltage Motor Test Bench (Measurement of torque, rpm V,A, voltage, current and temperature rise, mechanical and electrical performance)

**IT infrastructure**

lT facilities at GEC comprises, ERP, workflows, web based quotation software, employee self-service,   
CAD software, centralized design and drawing database, intranet, internet, email,   
Virtualization (Vmware with 22 VM’s), Citrix for remote application deployment and, VPN with   
group companies and branch ofﬁces, network security, back up and disaster recovery services. Infrastructure comprises of 4 Server, iSCSI Storage, SaaS cloud services for backup, CISCO Firewalls, CISCO ROUTERS.

**GEC Ltd Organization Chart**

Director Finance

G.M. Marketing

Manager (Sales)

Manager (Tenders)

Manager Product Development

Technical Director Director

DGM Production

Manager QA Director

Manager Maintenance & Tool Room

Manager (Engineering)

Manager (Production)

Managing Director

Lab In-charge

QA (Engr) Electrical

QA (Engr) Stores & RM

Purchase Manager

Stores In-charge

Accountant

Admn & Personnel Manager