

SARVESH ENGINEERING

PRESENTATION ON THE PROPOSED PROJECTS OFFERED ON TURN KEY BASIS.

SARVESH ENGINEERING

We offer projects/services in the enlisted areas on turn key basis.

- Technology transfer & Strategic alliance – New technology mostly from Europe is transferred to Indian/African market with complete know-how and technical back up. Strategic alliance and JV arrangements are very important for successfully transforming the technology.
- Plastic Packaging projects with special emphasis on rigid packaging projects.
- Post consumer plastics recycling projects, (including engineering plastics).
- Renewable energy projects – with special emphasis on Solar panel manufacturing & micro wind turbine manufacturing.
- All electric vehicle – Retrofitting EV kit on existing ICE vehicles
 - High efficiency electric motor manufacturing.
 - High efficiency heavy duty battery manufacturing.
 - Battery management system.
- Carbon fibre composite – for various usage like Automobile, Aviation, Military, and space craft etc.
- Product development – from concept to commercial.
- Substitution with Plastics – existing metal parts substitution with Plastics.
- Value added services – Equipment upgradation, Waste management and waste reduction, Energy conservation etc.

SARVESH ENGINEERING

TECHNOLOGY TRANSFER

With globalisation of market the technology is changing very fast. Improved technology gives various benefits like added facilities, higher speed and productivity, improved quality etc.

With global market the availability and choice is increased, where by customers are benefited and they get the improved product at affordable price.

Most of the technology is developed in Europe and commercialised by Europe/America. Since the latest technology is imported in India, it becomes costly in the local currency.

If the same technology is deployed in India with JV or collaboration with overseas partners and equipment/products are manufactured locally, they are available at an attractive cost.

We are well acquainted with new technology development centres, as well as the agencies/companies making technology commercially available.

We arrange technical collaborations/Joint Ventures with local business for making the latest technology developments available in India.

In order to remain competitive and offer the quality required by global market adoption of new technology is must, if one has to remain in the business.

Technology acquisition through JV is necessity as we get the proven process/technology, the teething problems in implementation are also minimized, and changeover time required is minimized.

SARVESH ENGINEERING

We offer technology transfer in the following areas –

- Solar Panel manufacturing as per EU standards.
- Solar down stream equipment, controller & inverter.
- Micro capacity wind turbines (rated at 1 kw to 5 kw).
- Retrofitting on EV kit on existing ICE vehicle.
- High efficiency electric motor for use in all electric vehicle.
- High efficiency and heavy duty battery manufacturing (new generation Lithium Polymer battery).
- Battery management system for end use in automotive, railways, naval and other areas.
- Carbon composite products for various end use like Automotive, Aviation, Military and space craft etc.
- Automotive products – a) specialised silicon hoses, and equipment for manufacturing these products.
 - b) steel reinforced rubber parts and equipment for manufacturing these products.
 - c) substitute with Plastic parts – to replace existing metal components by Plastics.
- Plastics processing and plastic processing equipment, for Injection moulding, Blow moulding, Injection Stretch blow moulding (PET), Profile extrusion, Sheet and film extrusion, rotational moulding etc.
- Pipe joining novel technique with out threaded joints, advantage leak proof piping at fast speed laying.
- Bottle to Bottle recycling technology for PET post consumer bottle recycling.
- Post consumer engineering plastics recycling technology.

SARVESH ENGINEERING

RIGID PLASTIC PACKAGING PROJECTS

Rigid plastic packaging refers to a very wide area in industry as well our day to day life and is one of the very important part of packaging.

We offer variety of plastic packaging projects in the area of Injection moulding, Blow moulding, Extrusion, Injection Stretch blow moulding, Compression moulding, etc. as per requirement. Few of them are listed here below.

Please feel free to contact should you require any other project.

- Caps and closure projects for Food and Beverage industry, Pharmaceutical industry, Edible oil, Lubricating oil, Speciality closures etc.



- PET bottles and Jars for various end usage like food & beverage, water, packaging, pharmaceutical, Lubricating oils, greases and other automobiles products, etc.



SARVESH ENGINEERING

- Engineering products packaging.



- Bottles and jars for cosmetic industry, with post finishing operation
Like printing, sticker application, sleeving, etc.



- Jars, jerry cans, and drums for various industrial applications like lubricating oil and grease packaging, Chemical packaging etc.

- Thin wall containers for milk by product like Ice-cream, cheese, yoghurt packaging, etc.
These containers require post finishing operation like Offset/pad printing, Sleeving or In-mould labelling, prior end use.



SARVESH ENGINEERING

- Air tight window and door profile.



There is very big market for window profiles, the product is currently imported and sold in local market, mainly from Germany.

- High quality fully serviceable PVC ball valves, and PVC fittings.

High quality valves have very big market specially in the agricultural and construction industry.

There are many pipe processors however the fitting and valves of good quality are still

Not available locally. These items are imported from Europe and traded in the market at

a premium price.

- Valves for medical and bio-medical usage, medical consumables etc.
- Artificial marble for civil construction, front façade, and other decorative purpose.

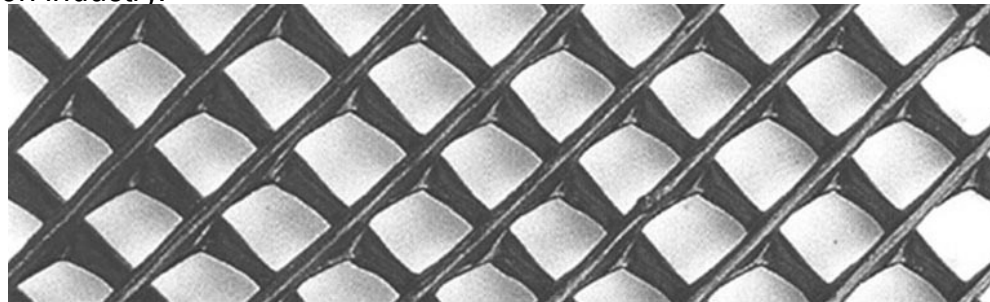


SARVESH ENGINEERING

- Drip irrigation and garden equipment.



- Geo net, Dimple sheet etc. for construction industry.



These nets are used during road construction, bridge construction etc. to ensure the water is drained to the ground and the soil erosion is minimized. There are other boards for water proofing applications. Majority of these products are made with recycled materials.

- Bubble board, Tube board and board for automobile, construction, acoustic industry etc.

The plastics extruded tubes are fused together to form a block, which is then cut to the required size. The cut sheets are laminated on both the sides. Lamination can be cloth, Wood venire, metal etc as per requirement. These boards are light weight, withstand high pressures, and heat as well as sound proof. This has a wide application in automobiles, furniture and construction industry etc.

SARVESH ENGINEERING

POST CONSUMER PLASTIC RECYCLING PROJECTS

Plastic recycling is a mechanical and/or chemical process of recovering plastic waste or scrap discarded during the production of plastic products (pre-consumer plastic waste) or after the use of these products by consumers (post-consumer plastic waste). Plastic recycling is not only economical but also helps decrease carbon emission. It is also environment friendly than production of virgin polymers, moreover, recycling plastics can save up to 85% of energy required to manufacture same amount of virgin plastics.

According to the report, the global plastic recycling market was valued at US\$ 31.5 Bn in 2015 and is projected to reach US\$ 56.8 Bn by 2024, expanding at a CAGR of 6.9% between 2016 and 2024.

Most of the commodity plastics and part of the engineering plastics is recycled in India.

Post consumer plastics recycling is a complex process involving collection, shredding the waste, cleaning and washing the shredded materials, sorting the materials, drying the wet materials etc.

In India majority of the recyclers are doing part of the activity, at a smaller scale in localized area.

We offer fully automated systems originated from Europe with high speed rating as 1000 kg/hr and above for the various plastics recycling. The recycled materials are in the form of uniform size granules and can be used solely or mixed with virgin materials to make the finished product.

The automated lines are consisting of conveyors, bale breakers, shredders, friction washer, separators, dryer & bagging system.

Recycling lines for PE, PP, PET, non-woven and engineering plastics are available.

Projects for converting recycled plastic to finish products as well as plastics to fuel also offered.

Post consumer plastics recycling is an attractive business, and need of the day.

SARVESH ENGINEERING

POST CONSUMER PLASTIC RECYCLING PROJECTS.

Post consumer plastic recycling is one of the very important areas in Plastic processing. In layman's language it is related with conversion of used plastic products in to finished goods. These projects are very important from environmental point of view, as it help to minimise the impact on environmental issues, reduce use of scarce resources and gives higher value addition.

Post consumer plastics can be converted in to various finished products depending upon the end use and the technology deployed for the recycling.

Post consumer plastics can be recycled to get up to 80% of the oil, 10 to 15% gases and about 5 to 10% of char (carbon). The oil and gas can be used as a fuel for power generation.

Recycled plastics can be used for making fuel cells also.

Some of the attractive post consumer plastic recycling projects are –

1. Conversion of post consumer materials in to flex or granules for further processing.
2. Recycled board for construction industry – replacement of plywood in construction industry.
3. Plastic sheets for construction industry, agricultural purpose etc.
4. Recycle board for furniture and similar applications.
5. Wood Plastic composite for front façade, out door application, decking purpose, furniture etc.
6. Industrial crates, industrial dust bin, waste collector etc.
7. Agricultural planters made with recycled plastics,

SARVESH ENGINEERING

RENEWABLE ENERGY PROJECT

The scope for improvement in India's energy system is vast. Renewable energy currently makes up a negligible share (0.36%) of total primary commercial energy supply while 96.9% of such supplies come from fossil fuels and 2.76% from hydro and nuclear resources.

The most important application for new alternative energy resources, such as wind, solar, hydel, geo thermal, tidal, biomass and waste, is in the area of electric power generation. Wind energy, solar, thermal as well as solar photovoltaic electric energy have substantial potential in India.

India is endowed with vast potential of renewable energy with current energy contribution at 31.70 GW of the total installed capacity of 245 GW in the country as on 31st March 2014.

India has the fifth largest power generation portfolio in the world and its current renewable energy contribution stands at 44.812 GW which includes 27.441 GW of Wind power and 8.062 GW of Solar power installed capacity in the country. (As on 31.07.2016).

Renewable energy contributes 14.7% of the total installed capacity in the country.

Government has ambitious target of 175 GW of renewable power by 2030 which will include 100 GW of Solar power, 60 GW from wind power, 10 GW from biomass power and 5 GW from small hydro power.(31.07.2016.)

Renewable energy project is one of the attractive field, which offers long term financial benefits as well as help in protecting environment.

Different types of non renewable energy are: Solar, Wind, Geothermal, Hydro, Tidal etc.

Solar, Wind and Hydro projects do exist in India, while first Geothermal project is coming up near Leh area.

We offer projects in the area of SOLAR and Micro wind turbines.

SARVESH ENGINEERING

RENEWABLE ENERGY PROJECTS.

Renewable energy projects are need of the day and are taken at a very high priority by government. These are completely green project and the cost of power generation is very low, as good as free. The life of project is about 25 years and more.

We offer renewable energy projects in the areas of –

➤ Solar energy –

Solar energy project requires many bought out parts to make an assembly. Solar Panel is one of the main important part in power generation.

We offer Solar Panel manufacturing project with technology transfer and technical know how from Europe.

Other projects for manufacturing Inverters, Down stream equipment's like pumps etc. can also be available.

➤ Micro Wind turbine –

As indicated by name these are tiny equipment, which can be roof top mounted or can be kept as stand alone equipment with smaller mast height of about 3 to 5 meter. The equipment is vertical axis and suitable for power generation between 1 kw to 5 kw. These are ideally suited for small communities at remote location, small farmers, small farm house etc. This equipment is very important to supply the power in remote location where grid connection has not reached yet.

➤ Geo Thermal power generation –

Power generated from the heat from hot springs under ground. These projects are for small and medium capacity power generation and requires high initial cost. First project of this type is coming up in LEH area.

SARVESH ENGINEERING

SOLAR POWER GENERATION –

India is blessed with huge potential for solar power generation in India. This is primarily because of its geographical location. India is a tropical country which receives solar radiation almost throughout the year. Almost all parts receive 4 - 7 KWh of solar radiation per sq. metres. The country is rapidly emerging as the major manufacturing hub for solar power plants with key potential areas in Andhra Pradesh, Bihar, Gujarat, Haryana, Madhya Pradesh, Orissa, Punjab, Rajasthan and West Bengal.

Solar power project includes components like Solar panel, Cables, Inverter, Controller etc. Solar panel is one of the key component responsible for converting solar radiation in to energy. The conversion of solar radiation is done by the photovoltaic cells. Solar panel is fabricated with multiple PV cells arrayed and laid on insulated materials, exposed to sun radiation, while protecting it with special glass materials.

We offer turn key project with technology transfer and know how from Europe, for manufacturing the SOLAR panels locally.

Projects for manufacturing the downstream equipment's like Solar pump, Solar lights, Inverters etc. are also available.

The lowest capacity of 25 MW project requires about 1000 sq. meter shed and about 100 kW connected power. Majority of these lines are automated and as such require very low manpower.



Solar panel.



Solar cell

SARVESH ENGINEERING

Micro capacity wind power generation.

- India is rapidly increasing its wind energy capacity, backed by a huge 4,671-miles coastline and high wind density on its western coast. According to the Global Wind Energy Council, India ranks fourth in terms of global installed wind power capacity, after China, the US, and Germany.
- Almost all wind parks in India are mega capacity, using horizontal axis wind turbines.

- THE MARKET POTENTIAL FOR MICRO CAPACITY –
 - Micro capacity wind turbines are small capacity wind turbines rated between 1 to 5 KW power generation. These turbines are mostly vertical axis turbines, which require very low foot print, can be started at 2 m/s wind and operate at 2.5 to 3 m/s wind speed. These turbines can be roof top mounted or kept on a stand alone type with taller mast in open fields. They are the best option for the power generation in remote areas, where power is required mainly for safety and security purpose, irrigation etc.
 - The largest potential market for micro capacity wind turbine lies in the rural parts of India where the grid connection has not reached so far, and the grid laying charges are very high. Few micro capacity turbines in each village will not only light up every house hold but can also make these villages totally reliant in electricity for water pumping and other simple agricultural needs.
 - In addition to rural market there is tremendous scope for roof top installation on commercial buildings, government office's, schools etc. There is also a considerable market for export of micro capacity turbines specially in the under developed countries, where power generation and grid laying is a problem.

SARVESH ENGINEERING

Advantages of micro VAWT Compared To Horizontal Turbines

- Can accept changes of wind direction with no problem.
- Generator can be on the ground for more easy access, rather than high up in the air.
- Generally begin rotating at lower speeds of 2 m/sec
- Lower operating noise, are nearly quiet.
- Lower susceptibility to cross-winds.
- Operates at low wind speed of 3 m/sec
- Birds friendly and no threat to wild life.
- Easier maintenance and lower maintenance cost.
- Longer operating life due to stable rotor structure.
- 360 degree use of Wind for power generation.

SCOPE OF MICRO WIND TURBINES IN INDIA

As per the data from Ministry of Power, almost 8 crores of rural homes do not have electricity connection.

There is a large portion of villages in remote area where the grid electricity is not available due to logistics problems, all such areas can be benefited from micro wind turbines.

SARVESH ENGINEERING

We offer complete technical know how and technology transfer from European manufacturer, with JV arrangement.

In Maharashtra alone, as informed by Mr. Devendra Phadanvis, Chief Minister, there were about 250,000 farmers waiting for the grid connection. Even 1 % market share will make a business highly profitable.

The project requirements – about 500 to 1000 sq. meter constructed shed and 100 kW connected load.

Skill required for fabrication and assembly can be developed locally. Skill required for testing, inspection, installation and commissioning is available in the country.

Investment required is about 1 to 5 cr depending upon the scale of operation planed. JV with European manufacturer will attract additional investment.

The expected payback period is about 3 years.

SARVESH ENGINEERING

ALL ELECTRIC VEHICLE

An **electric vehicle**, also called an **electric drive vehicle**, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or a generator to convert fuel to electricity. EVs include road and rail vehicles, surface and underwater vessels, electric aircraft and electric spacecraft.

All-electric vehicles (EVs) run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs. EVs have several advantages over conventional vehicles:

- Energy efficient - EVs convert about 59%–62% of the electrical energy from the grid to power at the wheels. Conventional gasoline vehicles convert only about 17%–21% of the energy stored in gasoline to power at the wheels.*
- Environment friendly - EVs emit no tailpipe pollutants.
- Performance benefits - Electric motors provide quiet, smooth operation and stronger acceleration and require less maintenance than internal combustion engines (ICEs).
- Reduced Maintenance - The number of rotating parts are few in Evs, and as such the maintenance needs are minimized.
- Reduced energy dependence.

EVs do, however, face significant challenges:

- Driving range: Range is typically limited to 60 to 120 miles on a full charge although a few models can go 200 to 300 miles.
- Recharge time: Fully recharging the battery pack can take 4 to 8 hours. Even a "fast charge" to 80% capacity can take 30 min.
- Battery cost: The large battery packs are expensive and may need to be replaced one or more times.
- Bulk & weight: Battery packs are heavy and take up considerable space.
- Currently high capacity batteries made with Lithium Polymer are used in replacement of Lithium ion batteries.

SARVESH ENGINEERING

All Electric vehicle and component manufacturing business has a bright future in India as well as abroad.

- All Electric Vehicle is mainly divided into enlisted areas –
 - High efficiency electric motor manufacturing.
 - High efficiency heavy duty battery manufacturing.
 - Battery management system.
 - Design, graphics, and body design etc.

- All Electric vehicle development and commercial production is initiated at Europe. Specially the development is done at Italy, where as the commercialisation of technology is done by Germany and France.

Sarvesh Engineering is having very good connections with the development centres in Europe, who are keen to make the technology available to Indian/Asian market.

The developers can support in developing commercial manufacturing hub for individual area.

The market in India is developing now, and the party will have a first mover advantage & establish leadership in the long run, there is huge scope for exports as well

SARVESH ENGINEERING

CARBON FIBRE COMPOSITE

Carbon fibre composite is a new technology for Indian market, however it is a matured technology in developed countries.

Carbon composites are used widely in Automobiles, Defence, Aviation and space technology, etc. due to its light weight and strength comparable with steel/metal components.

In India Carbon composite is currently used in high end technology like Defence, Aviation and space craft etc. In near future the use in automobile and other industry shall increase at a fast speed.

Carbon composite processing will be a very good business in the near future. High end cars like Pagani and Lamborghini are using carbon composites for passenger compartment, the front and rear-end structures, suspension components, interior, all exterior panels, etc, even the tailpipe is made from a carbon and Glass-ceramic composite.

Carbon composites can be surface treated for very high gloss Finish and different graphics as well.



SARVESH ENGINEERING

PRODUCT DEVELOPMENT.

We have in house capacity and capability for product development.

We offer complete product with special emphasis on the rigid plastic packaging development from concept to commercials. We have expertise in developing packaging for Food and beverage, Pharmaceutical, Alcoholic beverages, Aseptic filled and warm filled products, Lubricating oils, Chemicals etc.

We have wide exposure in substituting plastics with metal components. Plastic closures for pharmaceutical bottle is one of the example in India.

We have a wide exposure in import substitution and development of critical components and assemblies.

SARVESH ENGINEERING

VALUE ADDED SERVICES.

We offer value added services aimed at optimising the scarce resources and improve the bottom line.

Services includes –

➤ Equipment up gradation –

With globalisation of market the technology is changing very fast. Improved technology gives various benefit like added facilities, higher speed and productivity, improved quality etc.

With global market the availability and choice is increased, where by customers are benefited and they get the improved product at affordable price.

For getting the higher productivity and quality one can not go on changing the productive equipment every time, specially in the developing areas like India, as the capital investment required for such productive equipment is very high. The best option to achieve the higher productivity and required quality without replacing the equipment is equipment upgradation.

Equipment up gradation is done may be by addition or deletion some of the components/assemblies on the existing equipment.

Example of equipment up gradation – Addition of vertical injection unit on existing Battenfield 2000 ton injection machine to make two component product for automobile end use. Advantage huge savings in procuring two component new machine.

➤ Waste management & waste reduction –

Waste management and waste reduction is one of the important area however mostly overlooked. Controls on waste generation is plugging the profit drains for the industry. Waste management and waste reduction techniques vary from industry to industry and has to be looked as a unique solution for individual problem.

SARVESH ENGINEERING

➤ Energy conservation –

Each process require energy in some or other form. There is wastage of energy in the process which need to be controlled.

Saving by the energy conservation directly improve the profitability of business. Energy conservation techniques vary from industry to industry.

Energy conservation is need of the day.

SARVESH ENGINEERING

OUR PROFILE.

We are basically a Mechanical engineer, backed up with post graduation in marketing and production management.

Having wide experience of about 42 years in Industry, (includes 20 years overseas exposure) locally as well in International market.

Mr. Nandkishor Sarolkar was a nominated member of Kenya Bureau of standards.

Last assignment in India – Managing Director cum CEO of M/S Bericap India Pvt Ltd. A group company of MNC, having head quarter at Germany, involved in the business of Plastic caps & closures .

We have successfully implemented over 24 projects on turn key basis in India, Kenya, Tanzania, Nigeria, South Africa, Kuwait etc.

Mr. Sarolkar is owner of 8 no. Design registration (intellectual property) for the innovative quick connector mainly used for Air and Water application.

Mr. Sarolkar is having hands on experience in Power generation (LT) and transmission.

Mr. Sarolkar has successfully executed a strategic alliance and Technology transfer for Pune based company with European established Solar Panel manufacturer to make the European quality Solar modules in Pune, India.

SARVESH ENGINEERING

Pl. feel free to contact us should you require any additional information.

Contact person –

MR. Nandkishor Sarolkar.

Contact address –

Omkar Bungalow, Plot no 9,
Shridhar colony, Karve nagar,
PUNE. 411052.

INDIA.

Tel. +91 98 235 89998

E mail – solutions@sarveshengineering.com