PROGRAMS UNDER ENVIRONMENTAL MANAGEMENT

RESPONSIBLE MANAGEMENT

The Kirana Megatara Group is committed to run all its processing factory with an orientation to preserve the natural environment. Accordingly, environmental impact is always assessed before any significant changes is made to the production system – not just prior to constructing a new factory. During operation, measurement of any impact to the environment is constantly monitored throughout the year, with the system itself being subjected to a periodic review.

All systems and procedures related to environmental monitoring and control have been standardized under the **Kirana Management System** or **KMS**. KMS also encompasses the quality management and the safety and health management systems. This is developed so that all factories have the same standard of management and can be accurately benchmarked.

All of the Group's factories have been certified with ISO 14001:2015 and ISO 9001:2015 for environmental management and quality management, respectively.

MINIMIZATION OF ENVIRONMENTAL IMPACT

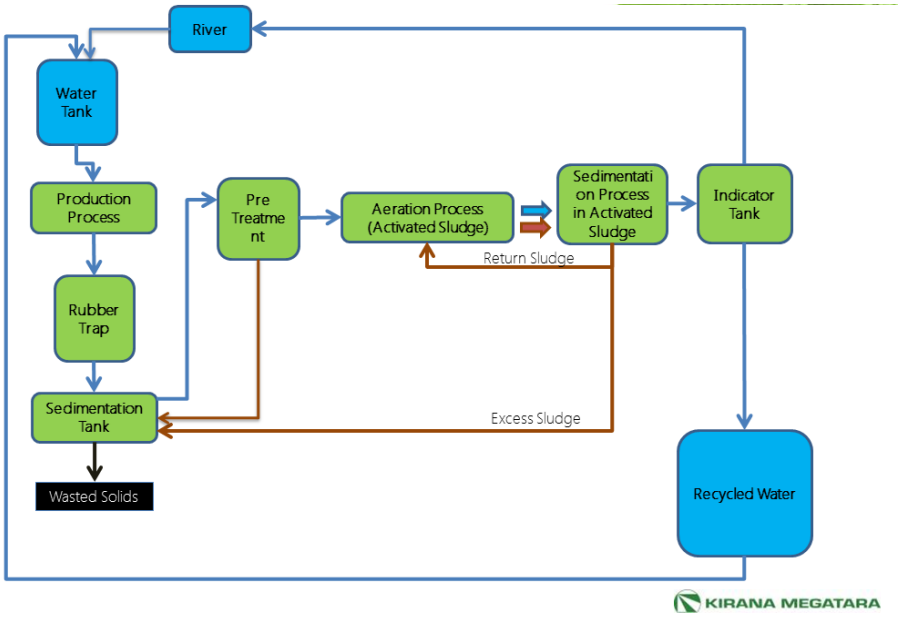
All factories under KMG process cup lumps of natural rubber from smallholders into blocks of technically specified crumb rubber. The pollution issues from a crumb rubber processor are mostly water pollution, with the rest being air pollution followed by hazardous and toxic waste.

WASTE WATER TREATMENT

To reduce water pollution, management has constructed waste-water treatment plants in all factories. These plants prevent pollution as much as possible to the streams of water located around the factory sites.

Laboratory test for water quality from the treatment plant is regularly performed for monitoring. The test is conducted by an external laboratory agency with national accreditation, which includes parameters such as BOD (biological oxygen demand) and COD (chemical oxygen demand) levels. Average test results for all factories show BOD level of 22 mg/L and COD level of 57 mg/L, which are well below the threshold of 60 mg/L BOD and 200 mg/L COD.

Schematic Process Diagram Of The Waste Water Treatment Plant



HAZARDOUS AND TOXIC WASTE HANDLING

Management of hazardous and toxic waste comprised of identification of potential waste source and the type of waste, installing temporary storage facility for the hazardous and toxic ones, and setting standard procedures for dispensing them. The hazardous and toxic waste that is temporarily stored is then handled by a third party which has a license for transporting and processing them.

Organic waste is collected and further processed into compost, while the inorganic waste is transported to the locally designated final-dump sites.

Routine monitoring is done to ensure waste processing goes according to the standard procedures.

AIR POLLUTION CONTROL

Any potential exhaust gas in the factory is channeled through chimneys that meet technical specification standards. Further efforts to control air pollution are undertaken through the following programs:

1. Total Preventive Maintenance for all machinery. This is to ensure that all machinery is under good performing condition such that the emitted gas pollutants are minimized. An under-efficient machine tends to spew more emission than a good performing one.

2. Greenery program around the factory. The more areas within the factory that can be planted by trees, the more of emitted CO_2 gas can be absorbed by the trees.

To monitor air quality, an external laboratory agency that has received accreditation is contracted once every six months. Among the parameters tested include, ambient air quality, chimney emission, noise level, odor level, as well as the working condition. Results thus far have demonstrated that the Group as a whole is able to satisfy the national air quality standard.

In support of reduction of the global warming effect, emission of greenhouse gases (GHG) is monitored on a periodic basis. The latest GHG emission is registered at 132.86 kg CO_2/ton which is still below the maximum standard allowed for the crumb rubber industry at 200 kgCO_2/ton.

RESPONSIBLE USE OF NATURAL RESOURCES

USE OF RENEWABLE ENERGY

Careful use of natural resources drives the Group to seek substitutes for oil-based fuel whenever it is economically viable. This is accomplished with the use of biomass energy in the form of palm shells. The shells have replaced the diesel oil previously needed to fire up the drying machine as part of the crumbing process. They are also regarded as clean energy as the waste is not considered hazardous while gas emission is reduced.

It is commonly accepted that the use of renewable energy in place of fossil-fuel based energy for helps reduce emission of GHG. In 2019 renewable energy – palm-shell based biomass -- represented 82% of the total energy consumed by the Group.

WATER RECYCLING

The crumb rubber industry consumes a lot of water on a daily basis, hence the reason why factories are mostly constructed near river streams. Yet, in order to conserve the use of ground/surface water and river water, the Group adopts the 3R approach:

1. REDUCE – optimizing the use of water by controlling the spigots during production, monitoring any leakage in the pipes and immediately repairing upon any leakage;
2. REUSE – through modifications and installation of additional equipment such that portion of the water can be reused for production;
3. RECYCLE – with the input taken from waste water treatment facility.

Furthermore, factories make biopore infiltration holes to enhance water absorption, and utilize the waste treatment facility as rain capture lagoon for additional source of non-ground water.

In 2019, the average use of recycled water comprised 43,2% of the total water consumed.