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Assessment of Urea Industry

Why in news?

A detailed assessment of the urea fertiliser industry was made recently under the CSE's (Centre for Science and Environment's) flagship Green Rating Project (GRP).

What is the Green Rating Project?

- GRP was started in 1997 to act as an independent watchdog on the environmental performance of large Indian companies.
- It is one of the few public-disclosure projects in the world in which an NGO ranks the environmental performance of industries and makes the results public.
- The rating process is robust and transparent and the outcomes help companies and policymakers to improve policies and practices.
- The rating results are used by the financial sector in their investment decisions.

How significant is the urea industry?

- The urea fertiliser industry is one of the most important industrial sectors for the country.
- About 70% of all the fertilisers used in the country is urea.
- Also, the urea industry has a significant role to play in addressing three major environmental issues of nitrogen pollution, ozone layer depletion, and climate change.

What are the key findings?

- The urea sector was rated on more than 50 parameters.
- **Sector rating** - The urea sector was rated 'average', with a respectable 42% score and was awarded the Three Leaves Award.
- The highest a sector or a company can achieve under GRP is the Five Leaves Award.
- Urea is only the second sector to get the Three Leaves Award, the other

being the cement sector.

- The other sectors have received the Two Leaves Award or below.
- **Rankings** - Grasim Industries Ltd's Indo Gulf Fertilisers, Jagdishpur, Uttar Pradesh, was rated as the greenest urea plant in the country.
- This plant, with a 61% score, received the coveted Four Leaves Award.
- It is only the second company out of 250+ companies rated by GRP so far to receive the Four Leaves Award.
- The next three winners have all received the Three Leaves Award, which are:
 1. KRIBHCO, Hazira, Gujarat
 2. Mangalore Chemicals & Fertilizers Ltd, Mangalore, Karnataka
 3. Yara Fertilisers India Pvt. Ltd., Babrala, Uttar Pradesh
- The worst rated plant was Madras Fertilizers Ltd, Chennai.
- **Emission** - The urea sector has performed very well in curtailing its energy use and CO2 emissions.
- The sector as a whole emits far lower CO2 per tonne of urea than the urea sector in the US or China.
- In fact, some plants, like Indo Gulf Fertilisers and Yara Fertilisers, match the global best levels in energy efficiency and CO2 emissions.
- **Water** - The urea sector has slipped on its water consumption and water-pollution parameters.
- Its water consumption is high and can be reduced by at least one-third by using recycling/reusing technologies.
- The sample of groundwater and effluents had high levels of contaminants.
- E.g. the ammoniacal nitrogen concentration in the groundwater in and around many plants was way above permissible limits
- **Health and safety** - A major concern was health and safety practices in older plants.
- The urea sector handles dangerous chemicals, like ammonia.
- However, most old plants had less encouraging safety practices as well as on-site and off-site disaster-management plans.

What are the key observations?

- The overall assessment is that incentives largely determine the environmental performance of the sector.
- As the urea sector is strictly controlled, the government has incentivised energy efficiency.
- Plants who do better than the energy consumption targets set by the government make more money.
- This is the reason why plants have done really well in energy consumption.
- However, no incentives are offered for controlling water consumption and

environmental pollution.

- So, there is no much investments by companies in pollution-control measures or in technologies to reduce water use.
- In fact, the government's urea pricing policy effectuates a disincentive to invest in environmental protection.

Why should urea use be reduced?

- Urea production is completely dependent on fossil fuels and, hence it contributes to greenhouse gas (GHG) emissions.
- Nitrous oxide (N₂O) emitted from agricultural fields due to the use of urea is also a potent GHG and an ozone-depleting substance (ODS).
- Its GHG potential is 300 times that of CO₂ and its ozone-depleting potential is similar to that of many hydrochlorofluorocarbon refrigerants.
- N₂O is now the largest ODS emitted through human activities.
- In addition, the world has breached the planetary limit for nitrogen, and the use of nitrogenous fertilisers is a significant contributor in this.
- **India** - Nitrogen pollution of surface water and groundwater has reached alarming levels in many states of India.
- There is also widespread soil sickness due to imbalanced application of nitrogen fertilisers.
- It is estimated that the cost of nitrogen pollution on health and ecosystems in India is Rs 5 lakh crore - four times the turnover of the urea industry.

What should be done?

- To address the above issues, the industry will have to reinvent itself.
- **Application** - Indian agriculture needs to shift from the present practice of bulk application of urea to a more precise supply of required nutrients.
- There has to be new and innovative products to improve efficiency of nitrogen use from the current 30-35% to more than 60%.
- This will reduce urea consumption, improve soil health, increase yields and reduce N₂O emissions.
- **Production** - The production of nitrogen fertilisers will have to shift from fossil fuels to renewables.
- E.g. the Fertilizer Corporation of India's Nangal plant, Himachal Pradesh employed electrolysis of water to produce hydrogen until it switched to hydrocarbons in the 1970s due to shortage of power in the Bhakra grid
- Clearly, India has the technology to produce nitrogenous fertilisers without using fossil fuels.
- The falling costs of renewable energy will make this an economically feasible option.
- **Policy** - The Indian fertiliser industry is one of the most tightly controlled

sectors of the economy.

- For the urea sector to take the above steps, the government needs to change its policy and bring a measure of decontrol.
- Apart from fiscal reasons, there are solid environmental reasons to decontrol the urea sector.
- Decontrolling will make the industry competitive and bring innovations in production and products.

Source: Financial Express



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