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Pesticide Industry: A Review of 12th Five Year Plan

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Abstract— Pesticide Industry is one of the important industries in Indian Economy and vital for food and nutritional security of nation.With diminishing cultivable land resources,ensuring food security for more than one billion Indians is hercules task.Agricultural production and protection technology have to play a crucial role in order to meet the needs of growing population.Substantial food production is lost due to insect pests,plant pathogens,weeds,rodents,birds,nemates,etc.This paper focuses on various angles related to pesticide industry keeping in mind 12th Five Year Plan.

Index Terms—Pesticide Industry,Five Year Plan,Indian Scenerio,Demand and supply,Employment,Action Plan,Strength and opportunities

1 INTRODUCTION

Pesticide Industry has developed substantially and has contributed significantly towards India's public health and agriculture.The size of Indian Pesticide Industry is $ 3.8 billion in year 2011 in value terms and exports pesticides predominantly to USA,Europe and African countries.At present, domestic industry is characterized by over-capacity, low capacity utilization and unsuitable levels of production from many units and low investments in R&D.With large number of small formulators, the formulation market is highy fragmented.As there is growing trend towards low dosage,high potency molecules globally,usage of high volume pesticide is declining.

2 METHODOLOGY

2.1 Global Scenerio

With key markets being USA, France, Netherlands, South Africa, Bangladesh, etc.export opportunities are immense for Indian companies.

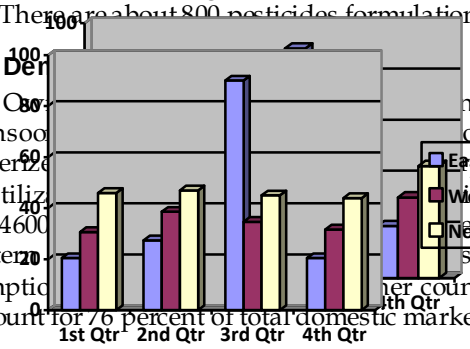
2.2 Indian Scenerio

After USA,Japan and China,India is 4th largest producers of pesticides.In Asia India is 2nd largest producers of pesticides after China.Over past five years (FY 07- FY 11) the Indian Pesticide Industry has been growing at rate 8-9 percent per annum.With exports accounting for 50 percent of market, industry size is estimated to be $ 3.8 billion.

The segment is expected to grow at 12-13 percent per annu m with export demand 15-16 percent per annum and domestic demand growing at 8-9 percent per annum over 12th plan period.

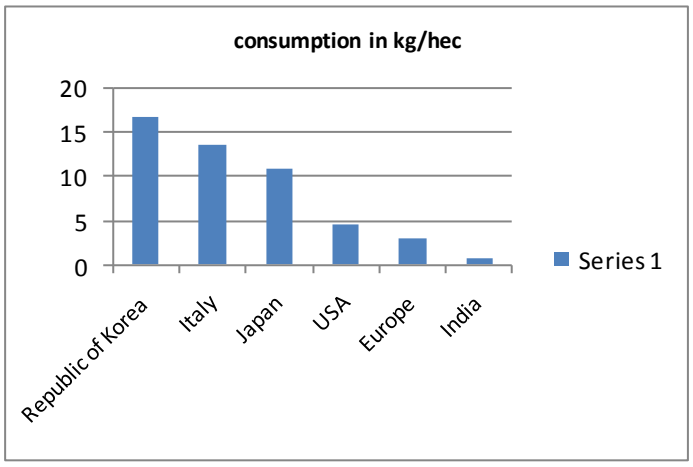
Multinational, Indian including public sectors companies an small sector units are 3 broad categories of companies present in India.Among 125 technical grade pesticide manufacturers, 60 are in organized sectors and 10 are multinationals. There are about 800 pesticides formulations in th ecountry.

2.3 Der



Co nd on account of monsoo ory and it is characterize y has low capacity utiliz ed capacity of 14600 s in consumption patter st of world. Consumptio er countries.Insecticides account for 76 percent of total domestic market.

2.4 Employment



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Approximately 60000 people are directly or indirectly employed in Pesticide Manufacturing sector.Industry envisages employment increase to the extent of 7 percent in 12th five year plan.

3 TRADE

As India is net exporter of pesticides and export accounts for 50 percent of pesticide market, it grew at ~15 percent per annum during 11th plan period and is expected to be growing at same rate during 12th plan period.

4 STRENGTH AND OPPORTUNITIES

4.1 Cost Competitiveness:

Even considering taxes and levies,products at cheapest price can be made available in world by Indian producers. Low cost manufacturing base leads to competitive cost of production of pesticides especially Pyrethroids, Organo Phosphorous (OP) Ester, etc.

4.2 Huge Export Potential

Exess production capacity is perfect opportunity to increase exports by utilizing India's low cost producer status.

4.3 Growth in Demand for food grains

Increase in population and high emphasis on achieving self sufficiency for food grains, expects to increase growth of pesticide industry as India has 16 percent of world's population and less than 2 percent of total landmass.

4.4 Limited farmland availability

India has more than 190 million hectres of gross cultivated area and scope of bringing new areas under cultivation is severely limited.Available agriculture land per capita has been reduced globally and is expected to reduce further.Therefore there is pressure to increase yield per hectare which can be achieved through increased usage of pesticides.

4.5 Growth of horticulture and floriculture.

Demand for pesticides especially fungicides will increase due to growing horticulture and floriculture industries.

4.6 Increasing Awareness

Due to non-use of pesticides,there is loss of crops.Companies are increasingly training farmers regarding right use of pesticides in terms of quantity to be used,the right application methodolgy and appropriate chemicals to be used for identified pest problems.With increasing awareness,the use of pesticides is expected to increase.

4.7 Patent Expiry

In 2014, many molecules have gone off patent throwing the market open for generic players.Pesticide Industry in India can exploit this opportunity.

4.8 Product Portfolio expansion

If industry re-orients itself to better address the needs of its consumers, threats like genetically modified seeds, integrated pest management (IPM), organic farming,etc can be turned into opportunities.

4.9 Environment Friendly Pesticides.

There will be gradual shift towards pesticides that are user and environmental friendly due to issue of monitoring of pesticide residues in food and agriculture commodity.

4.10 R&D in Pesticides

Indian companies will need to increase R & D expenditure to meet competition from global market.

5 CHALLENGES AND WEAKNESSES

5.1 High cost of power and finance:

Very high cost of power, unreliability of supply and frequent interruption with high transmission and distribution losses. Chemical industry is highly capital-intensive and high cost of finance in India is a challenge (interest rate 14%-15% p.a. as compared to 2% to 6% prevailing in developed countries).

5.2 Infrastructure

Poor transport and communications infrastructure, resulting in delays and slow movement of goods.

5.3 Scale of production

The plant sizes are not comparable to world-scale operations effecting to cost of production.

5.4 Labour Laws

Labour laws at present do not allow flexibility in deployment of labour. This discourages modernization and investment in technological changes and eventually leads to industrial sickness, thus adversely affecting workers as well.

Cumbersome and complicated product development process from inception to registration to manufacture, formulation and sale

Luke warm response of Centre and State Governments in strengthening quality control enforcement

In comparison to other agriculture inputs like fertilizers (50% subsidy) and seeds (no excise duty and taxes), pesticides are excisable and multipoint taxable.

5.5 R&D Costs

R&D to develop a new agrochemical molecule takes an average of 9 years and high cost on research. Indian companies have to focus on developing newer molecules and will face challenges in building these capabilities.

5.6 Need for efficient distribution systems

Since the number of end users is large and widespread, effective distribution via retailers is essential to ensure product availability. Lately companies have been directly dealing with retailers by cutting the distributor from the value chain thereby reducing distribution costs, educating retailers on product

usage and offering competitive price to farmers

5.7 Counterfeit products

The spurious pesticides market has a negative impact on the organized sector revenues and farmers.

6 ACTION PLAN 2012-17

Based on the export potential and potential for increased penetration in the domestic market, the Indian agrochemical industry can target a size of $7.7 billion by FY17 (up from existing $3.8 billion). However, achieving this target will require governmental support and the industry initiative with regard to the following aspects:

1. **Registration of pesticides:** Delay in getting product registrations leads to delay in exports, hampering India's exports. The procedure should be simplified and time bound registration and issue of registration certificate for export within 30 days from receipt of request from exporter/ manufacturer should be ensured. Efficiency of Central Insecticides Board & Registration Committee should be increased by bringing more transparency, implementing robust and secured online data submission

2. **Multiple governing authorities for crop protection**, e.g. pesticides comes under Dept. of Chemicals and Petrochemicals, Ministry of Agriculture and Ministry of Health & Family Welfare. These activities falling under different ministries should be merged. Government could explore setting up a separate division under Dept. of Chemicals & Petrochemicals which could deal with all the issues such as pesticide registration, its use, fixation of standards for residue in food chain etc.

3. **Environmental clearance should be speed up** through single window clearance for setting up pesticides manufacturing plants. Once a factory is cleared from the environment point of view, any product changes (within selected parameters) could be allowed without seeking additional clearances.

4. **Ambivalence prevails about the use of pesticides.** There is need to pro-actively educate farmers for the safe, appropriate and judicious use of pesticides. A clear national policy directive is needed to increase pesticide usage, as at present the coverage is only about 20% of cultivated areas resulting 10 to 30% crop loss due to pests and weeds

5. **Spurious pesticides:** The presence of spurious pesticides in the market is major problem. The problem can be tackled by adopting the following approach:

a. Improve the method of sampling, and make the inspectors accountable

b. Pesticide testing labs need to be upgraded and should be mandated to seek accreditation from NABL (National Accreditation Board for Laboratories) i.e. ISO 17025 certification

c. Industry members or independent quasi-government agencies should be allowed to undertake surprise visits to these labs

d. A joint analysis of samples through an independent laboratory which is accredited by NABL should be considered

e. Insecticides Act, 1968 should be reviewed and amended for any loopholes that can be exploited to support spurious pesticide manufacturers

6. **Recognize pesticides as a knowledge based industry:** The pesticides industry is to be provided the same support as pharmaceuticals. This would support investment in R&D

7. **Budgetary support to pesticides industry:** Considering crop losses due to pests, weeds and diseases, there is urgent need for the following budgetary support:

a. The pesticide industry is to be treated equal to fertilizer industry and the government to reduce central excise duty from the present 10% to 4%. This will reduce costs, resulting in increased usage of plant protection chemicals to reduce crop losses

b. Section 35(2AB) of the Income Tax Act should be amended to provide weighted deduction of expenses for the following:

i. Agriculture extension work such as undertaking demonstration and training to farmer and all expenses connected thereto

ii. Development, upkeep and use of agricultural web sites

iii. Undertaking of R&D work in-house or through agricultural universities or reputed research organizations

iv. Farmer meetings for sharing best practices and their familiarization tours for education and training

v. Fees & expenses paid to experts for dissemination of information and best practices to farmers/ users

vi. Knowledge dissemination through media or otherwise

c. All agricultural inputs should be treated as far as taxes, levies and subsidies are concerned, at par.

d. Government should consider and allocate funds for educating end users/ farmers for the benefit of pest control and also safe and judicious use of pesticides

e. Government should encourage latest technology adoption measures among farmers and create farmer panels for key crops across India

8. To ensure better adherence to Safety Health & Environment (SHE) and Good Manufacturing Practices (GMP) norms for crop protection, Government should make efforts to guide SMEs.

7 TARGET FOR XIITH FIVE YEAR PLAN

The Indian pesticides industry grew at a rate of 8-9% over the past five years (FY07-FY11). Industry size is estimated to be $3.8 billion in FY11 with exports accounting for ~50% of the market. Over the XIIth plan period, the segment is expected to grow at 12-13% p.a. with domestic demand growing at 8-9% p.a. and export demand growing at 15-16% p.a. Based on the export potential and potential for increased penetration in the domestic market, the Indian agrochemical industry target a

size of US $7.7 billion by FY17.

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