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National Academy of Agricultural Sciences

***Better Management of Pesticides
in India: Policy Perspectives***



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Preface

Amongst various agrochemicals, the pesticides play an important role in increasing agricultural productivity and preventing crop loss. However, their indiscriminate use has a huge impact on the health of humans, animals, bio-diversity and environment. Until now, pesticide manufacturing and use in India was governed by a more than 50-year-old *Insecticide Act*, which was considered inconsonant with the changing scenario of pesticide industry. Many farmers, activists and experts consistently expressed an urgent need to address issues related to pesticides with a focus on protection of farmers and promotion of their safe use. The Pesticide Management Bill (PMB) has been in discussion since 2008, but it could not be introduced in the Parliament. Fortunately, a new Pesticide Management Bill 2017 has now been approved by the Union Cabinet on February 12, 2020 to regulate the manufacture, import, sale, storage, distribution, use, and disposal of pesticides, in order to ensure the availability of safe pesticides and minimize the risk to humans, animals, and environment. The new bill that seeks to replace the *Insecticides Act, 1968*, is to be tabled in the Parliament soon. The upcoming Bill is of critical importance to address various issues and concerns about pesticides and their handling to ultimately empower farmers by providing them with all the information about the strengths and weaknesses of pesticides, the risks and alternatives. Against this backdrop, an Experts' Meet of representatives from the academic and research establishments, industry, farmers, and government(s) was organized by the NAAS on February 4, 2020 to critically look into all aspects related to pesticides management primarily focusing on the provisions of the new Bill, and communicate the recommendations to the government for their immediate consideration.

This policy brief on *Better Management of Pesticides in India: Policy Perspectives* highlights some concerns and plausible policy suggestions emerged during the Experts' Meet for strengthening the proposed Bill to achieve the goal of safe and judicious use of pesticides for higher productivity and sustainability of agriculture. On behalf of Academy, I compliment Dr B.S. Parmar, Convenor, Prof R.B. Singh and other experts for their valuable efforts in developing the policy brief. My thanks are also due to Dr Kusumakar Sharma and Dr P.S. Birthal for their editorial support. I am hopeful that this document will be useful to the Fellowship and all stakeholders.

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Better Management of Pesticides in India: Policy Perspectives

1. Introduction

The National Policy for Farmers 2007 emphasizes on the development, introduction and diffusion of environmentally safe and effective pesticides and strengthening of quality control, safety evaluation and other regulatory systems. The Parliamentary Committees on Agriculture too, from time to time, have recommended deterrent punishments for the manufacturers/sellers of spurious insecticides and fixing of Maximum Residue Limits (MRLs) for registration of the pesticides. These developments triggered thinking for a more stringent regulatory regime for pesticides.

The Pesticides Management Bill 2008 was supposed to replace the Insecticides Act 1968 that provided for regulation of import, manufacture, sales, transport, distribution, quality and use of insecticides (pesticides) with a view to prevent risk to human beings or animals, and for matters connected therewith. The Bill was presented in the Parliament in October 2008 and then referred to the Standing Committee on Agriculture that submitted its report in 2009. Parliamentary approval, however, remained pending because of several criticisms against it. A few of these included: inadequate staff for implementation of its key provisions, limited capacity of the government-owned quality control laboratories, lack of life cycle liability and traceability of producers and distributor networks, price regulation, insufficient provisions to protect human health and environment as well as lack of transparency in data disclosure.

Several suggestions came for amending the Bill that included: precautionary principle in the objective to give priority to human and environmental health in case of any uncertainty, to make the Ministry of Environment and Forests or the Ministry of Health as regulator of the Bill rather the Ministry of Agriculture & Farmers' Welfare which is a promoter of the pesticide use, a comparative risk assessment of the old versus new pesticides while registering the new products to establish their safety and superiority, empowering to States to regulate pesticide use, making the manufacturer liable for environmental contamination and human health impacts on the 'polluter pays' principle, and provision of compensation to consumers under the Pesticide Management Bill 2008 rather than the Consumer Protection Act 1986.

The PMB 2017 addresses several of these issues. However, this Bill could not be enacted in 2017 as envisaged probably due to the persistent dissatisfaction amongst the stakeholders. The preamble of the Bill describes it as a Bill to regulate import, manufacture, export, storage, sale, transport, distribution, quality and use of pesticides with a view to control pests; ensure availability of quality pesticides; allow pesticide use only after assessing its efficacy and safety; minimize contamination of agricultural commodities by pesticide residues; create awareness among users regarding safe and judicious use of pesticides, and to take necessary measures to continue, restrict or prohibit the use of pesticides with a view to prevent their risk on human beings, animals or environment, and for matters connected therewith or incidental thereto.

In order to have a critical analysis of all related aspects for better management of pesticides in the country to ultimately achieve enhanced agricultural productivity, ensure environmental safety and human health, and strengthen *Make in India* initiatives, the National Academy of Agricultural Sciences (NAAS) organized a meeting of the experts. In this context, it was pertinent to primarily focus and thoroughly examine the Pesticides Management Bill 2017(PMB 2017). This policy brief highlights some concerns and plausible policy suggestions.

2. Definitions and addenda to the preamble

- a. The definitions of some of the terms given in Chapter I of the PMB 2017 are vague and need reconsideration. The Bill has dispensed with the Schedule existing earlier in the Insecticides Act 1968. A variable interpretation of the proposed definitions by different stakeholders may create confusion and undesirable situations. Even the definition of the term “Pesticide” is confusing as pesticides are not mere mixture of substances but are products with well-defined level of purity or content of the active ingredient.
- b. The listing of the approved pesticides in a Schedule to the Act as practiced earlier must be continued. Also, it is appropriate to adopt standard internationally accepted definitions duly citing their sources to emphasize their credibility. For example, WHO/HTM/NTD/WHOPES(2010)¹ define a pesticide as: “... *any substance, or mixture of substances, or micro-organisms including viruses, intended for repelling, destroying or controlling any pest, including vectors of human or animal disease, nuisance pests, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport, or marketing of food, agricultural commodities, wood and wood products or animal feeding stuffs, or which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as insect or plant growth regulators; defoliants; desiccants; agents for setting, thinning or preventing the premature fall of fruit; and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport. The term also includes pesticide synergists and safeners, where they are integral to the satisfactory performance of the pesticide*”. In view of bio-security concerns related to the inclusion of the substances of biological origin in the Act, a comprehensive description of the term biological should be provided for. For example, biological pesticide has been defined by FAO-WHO (2017)² as: “*Biological pesticide/biopesticide as a generic term is generally applied to a substance derived from nature, such as a microorganism or botanical or semi-chemical that may be formulated and applied in a manner similar to conventional chemical pesticide and that is normally used for short term pest control*”.
- c. A small group of experts may be entrusted to examine different definitions proposed from time to time and recommend the most appropriate one for its adoption. If needed, the NAAS may be consulted to identify the experts.
- d. The word *handling* may be added in the preamble of the Bill to make the statement more comprehensive.

3. Import of technical grade pesticides/ formulations and related registration issues

- a. The Bill does not mandate compulsory registration of the technical grade pesticides. This encourages imports of technical grade pesticides. Hence, compulsory registration of technical grade pesticides prior to granting import license or permit indigenous manufacture of formulations is strongly recommended.
- b. India is well-equipped to undertake pesticide formulation development activities in the UNIDO enabled Pesticide Formulation Institute and also in the institutes in the public and private sectors. To give impetus to *Make in India* program, only the quality technical pesticides should be imported for formulation applying indigenous technologies. An enabling environment for investment by multinational companies (MNCs) may be created to ensure quality and competitive prices.
- c. Registration of new molecules developed outside India should be done during their patent protection periods and simultaneously with other countries. The registration system should be made efficient and smart to ensure time bound registrations.

4. Indigenous products and technologies, research and development and invent and make in India

- a. The Bill needs to state clearly about the enabling environment for promotion of indigenous research, technology and product development. The actions, incentives, priorities or other policy directions that stimulate, encourage and provide impetus and recognition to the indigenous research and development effort on multifarious aspects of pesticides such as new molecules and technology development, formulation, application, analysis and safety must be highlighted.
- b. In view of limited progress towards developing newer molecules, there is a need to establish a dedicated center for research for development of newer molecules and greener technologies. India should assume leadership role in developing protocols for sustainable green products and technologies given its rich biodiversity.

5. Registration process and related issues

- a. The process of registration should be transparent and time-bound with a system of built-in accountability and punishments for the delays and information leakages. Online registration can help towards this. Priority registration for new chemistries and products, exportable products to meet national exigencies in a time bound manner needs to be defined. Provision of tentative emergency registration of pesticides for an invasive pest before its widespread is highly desirable. If a molecule has already been tested for efficacy or has a history of safe use, the codex MRL may be adopted temporarily to meet the mandatory registration requirements.
- b. The data requirement for exports may be kept at barest minimum parameters, as the imports are governed by the importing countries' rules and regulations. The document of registration in

the form of a monograph as practiced by U S Environmental Protection Agency is suggested. Representation of the industry in the Registration Committee, Central Pesticides Board and any other such Committees is suggested.

- c. While registering products, due emphasis must be laid on residue data in the environment, particularly soil and water. The inclusion of soil and water health parameters, as influenced by pesticides, heavy metals and the other xenobiotics, should be a mandatory component of the Soil Health Cards.
- d. To enable safe import of agricultural commodities, MRLs should be fixed at default. An *Import Inspection Council* is proposed to take care of aspects relating to human and environment health and safety.
- e. Periodic monitoring and evaluation for efficacy, safety and MRLs is suggested for the registered pesticides and for import/ export of agricultural commodities so as to keep abreast with the changes associated with long term use of chemicals.

6. Quality control, sampling, testing and analysis, testing infrastructure including quality human resource

- a. Quality of the product is of paramount importance. The physico-chemical parameters of the technical materials and subsequently formulations based on these must comply with the prescribed international requirements. In other words, pesticide specifications prescribed by the Bureau of Indian Standards (BIS) should be made more stringent and brought at par with the international guidelines.
- b. Uniform sampling guidelines including sample size, sample containers, sub-sampling and its procedure, along with standard deviation and accuracy levels should be described precisely. Since penalties for default are heavy, the precision and accuracy of the test procedures must be duly highlighted.
- c. The Central Pesticides Laboratory itself should also be Good Laboratory Practices (GLP) compliant and accredited by the National Accreditation Board (NAB) with a special provision for maintaining confidentiality of sample source.
- d. Enhanced network of the similarly compliant and (or) accredited government laboratories needs to be simultaneously established to cope up with the current and the future analysis.
- e. The national laboratories must be networked together to get a holistic pool of database to be managed through big data analytical tools so as to tracing culprits responsible for sub-standard and spurious products.
- f. Enclosure of chromatograms with the sample analysis report should be made mandatory.
- g. In the event of a test report on a sample being challenged, its retesting is suggested at multiple accredited laboratories located at different locations, ensuring secrecy of the sample source. If there are contradictions, a provision of joint analysis by the representative of the challenging party and the laboratory analyst may be made to ensure a fair treatment.

- h. The toxicological assessments should be risk based rather than hazard based. Such data should also be mandated over time for generation in GLP compliant laboratories to enable mutual acceptance and exchange across countries.

7. Pesticide grouping for pest resistance management

- a. The continued use of pesticides with a similar mode of action results in faster development of resistance in pests. The problem can be addressed by grouping pesticides based on a similar mode of action and by numbering these groups as 1, 2, 3.... on the label of the container and leaflet for identification and understanding by the farmers so that they can avoid continuous use of a particular group of pesticides and rotate these by groups.
- b. CODEX aligned crop groups are documented for 554 crops of which only 80 high volume-low value crops are covered by the registered use of pesticides. The rest include high value- low volume crops such as spices and vegetables which often experience off label pesticide use. The Government of India has approved guidelines for group MRLs. The data generation for these must be speeded up.

8. Safety of workers and related handling, application etc. aspects

- a. Safety of farm workers finds no mention in the Bill. Recommendations on protective clothing, head and face masks, gloves, shoes, etc. and their compliance must be indicated. Indigenous development of these is required to suit the Indian conditions.
- b. Handling pesticides before, during and post-application is a neglected aspect in India. For example, farmers/ farm workers often manually prepare dilutions of formulations to achieve the required concentration. There is complete ignorance about the dermal, respiratory and other toxicity and related effects of pesticides. The Bill needs to prescribe remedies to contain such ignorant acts through education of farm work force.
- c. There is a lack of availability of proper application technology. Most farmers/farm workers are not aware of the unintended and undesired environmental introductions of the toxicants during application such as through drift, Brownian movement of colloidal particles etc. These contaminate not only the neighboring crops but also the various environmental components. The Bill needs to ensure remedial measures for such ignorant acts.

9. Punishments

- a. The decriminalization of agro-inputs manufacturing sector is strongly recommended. The Code of Criminal Procedure, 1973 should not be applied in this sector.
- b. Biopesticides quality control is a matter of serious concern as most products are reportedly laced with chemical pesticides³, yet their producers have been hardly punished.
- c. Prior Informed Consent procedure for hazardous chemicals and pesticides is driven by Rotterdam Convention, 2004 under UNEP/FAO³. It needs not be covered in the Bill. Alternatively, a mention of the convention rules also be simultaneously made in the Bill.

- d. The terminology for default should be clear and self-explanatory. For example, the terms such as efficacy on crops, toxicity to animals etc. are subjective. Such clauses, therefore, need a very careful rewording.
- e. The current market for spurious, sub-standard and misbranded pesticides is estimated to be between 25-40%⁴. While prescribing punishments, it is essential to demarcate these categories clearly and ensure that there is no confusion due to overlapping meanings. The correct assignment of the offence category is a pre-requisite to imposing the punishment or instituting any other action.
- f. Punishment needs to be prescribed for such landlords/ farmers who hire labour to perform various farm operations but do not ensure compliance to their safety, safe pesticide storage and disposal of empty containers as per the prescribed guidelines.
- g. Industry providing wrong information to the government or public or providing inflated figures of cost, expenditure and investments also deserves to be punished.
- h. The industry must ensure that the information presented on the label or detailed in a leaflet is legible and easily understandable by the users.
- i. Punishment should not be for only the offenders of the Act but also those who do not implement its provisions with honesty, dedication and sincerity. People should not be protected under the garb of the title of a 'Public Servant'. Punishment needs to be defined for any authority that misuses the provisions of the Act or does not perform duty with dedication and sincerity.

10. Data protection

- a. PMB 2017 is silent on data protection. Those in favor of data protection argue that for off-patent but newly introduced chemicals, it should be made mandatory for a minimum of 3 years with the clause that the industry has to register the chemical to enable promotion of Make in India by domestic companies under 9(4) *me too* registrations. Those against it argue that it will effectively extend monopoly of patent holder further over and above 20 years patent protection under WTO provisions.
- b. Various committees appointed by the Government of India to deliberate on the subject have given contradictory recommendations. Mrs. Satwant Reddy Committee had recommended three years data protection for the first registrant. An informal group of Ministers had ruled against it in 2015, a decision that was accepted by Ministry of Agriculture. Earlier, 88th report on patents and trademarks systems in India submitted in Rajya Sabha by the parliamentary standing committee on commerce chaired by Dr. Murli Manohar Joshi categorically rejected the demand for data exclusivity. Recently, Dr. Ashok K Dalwai committee has suggested 2-3 years data protection.
- c. After a careful consideration of the scenario, it is recommended that the *me too* registrations can be gainfully allowed by asking the subsequent registrants to provide safety and bio

efficacy data and MRLs on additional crops/ crop groups on which the chemical has the scope for use. This data can be allowed for use by all the registrants including the first one. The Registration Committee at its discretion and in view of the requirements at a particular given time, may seek information from fresh applicants on any other aspect of the chemical such as resistance development, revised MRL values, bio efficacy status information against a specific pest etc. in lieu of the routine crop data, to enhance information base in the big product data bank. The new applicants must contact the appropriate authority for guidance before application preparation.

Key references

¹International Code of Conduct on the Distribution and Use of Pesticides: Guidelines for the registration of pesticides. WHO/HTM/NTD/WHOPES/2010.7

²Current scenario of non-genuine / illegal pesticides in India: Study on sub - standard, spurious/counterfeit pesticides in India 2015, REPORT, FICCI- Knowledge and Strategy Partner -Tata Strategic Group, pages 16-19.

³UNEP/FAO (2004) Rotterdam Convention. In force from 4th February, 2004. United Nations Environment Programme.(pic.int/The_Convention/Overview)

⁴ICFA (2017) Report of National Round Table of CEOs on Indian Plant Protection. Indian Council of Food and Agriculture (ICFA), New Delhi, 2017, page 4.

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