NJAS - Wageningen Journal of Life Sciences 67 (2013) 19–26

Contents lists available at ScienceDirect

NJAS - Wageningen Journal of Life Sciences

journal homepage: www.elsevier.com/locate/njas

State governance of pesticide use and trade in Vietnam

Pham Van Hoi*, Arthur Mol, Peter Oosterveer

Hanoi University of Agriculture, Gialam Hanoi, Vietnam

ARTICLE INFO

Article history:
Received 23 April 2009
Received in revised form
13 September 2013
Accepted 14 September 2013
Available online 25 October 2013

Keywords:
pesticide
state
retailer
farmer
market and environment

ABSTRACT

Vietnam is facing serious challenges with respect to the amount and toxicity of the pesticides used. With hardly any domestic pesticides production, Vietnam experienced an exponential growth of both the quantity and the value of imported pesticides in recent years. And the increasing import of newly formulated (and safer) pesticides has not replaced or reduced the highly toxic pesticides with low efficacy. The improper use of pesticides by farmers (too high dosages, cocktailing of pesticides, inadequate pre-harvest intervals etc.) has further contributed to the environmental and health problems resulting from pesticides, especially in poorer areas where farmers have to largely rely on cheap but often old and more toxic pesticides. Despite a growth in pesticide policies and regulation, the state has been unable to regulate the pesticide market. The main causes behind the state failure in pesticide market regulation are the governance structure (i.e., centralized decision making), large corruption, information distortion and a failing legal system. To some extent, and in some more wealthy areas, famers and retailers have emerged successfully as new pesticide governance actors. But an overall improvement of pesticide registration and pesticide use can only rely on better government intervention: more stringent implementation and enforcement of regulations, more effective promotion of IPM-based pest control, further public participation in implementation and higher ethics within government.

1. Introduction

Pesticide use in agriculture has two sides. On the one hand it increases agricultural production and output through the reduction of pests and diseases and related crop loss. On the other hand, the continuous reliance on pesticides in agriculture poses serious threats to both the ecosystem and human health.

As an agriculture-based country, Vietnam is presently paying high costs for its reliance on pesticides. With just a few active ingredients produced domestically, pesticide imports into Vietnam are approximately US$500 million/year at present. However, the indirect costs are much higher: social and environmental costs related to pesticide use, the loss of export opportunities due to high pesticide residues on products, and an instable agricultural productivity associated with a degraded agro-ecosystem. In 2002, more than 7,000 cases (involving 7,647 people) of food poisoning by pesticide residues were reported, causing 277 deaths in 37 out of the 61 provinces [1]. These numbers exclude "silent" casualties by pesticides [2]. Besides acute poisoning due to direct and indirect exposure to pesticides, chronic pesticide poisoning could have an effect on 2 million Vietnamese farmers (Trung et al., cited in [3]). The annual costs of pesticide-related domestic human health and of lost export opportunities for vegetables and fruits in Vietnam is estimated at US$700 millions [4]. This equals the total estimated export income of vegetables and fruits in 2010 [5]. And in that figure the environmental costs of pesticide use are not even included yet.

While initially state authorities in all countries heavily supported pesticide use, more recently state efforts concentrated on reducing or even getting rid of a heavy reliance on pesticides in agriculture. State authorities in all countries have played a major role in pesticide regulation, which directly and indirectly affects industrial pesticide production, pesticide distribution and their use in agriculture [6,7]. Firstly, state authorities are involved in banning certain highly toxic pesticides like persistent organic pollutants (POPs, following the Stockholm Convention), or the US "Big Green" [8]). Secondly, states have restricted the market entry of new or the use of existing pesticides. Reducing the pesticide reliance of agricultural practices is a third main state policy on pesticides. Increased taxes imposed on pesticide imports and use discourages farmers from (over)reliance on pesticides [9]. Integrated pest management (IPM) or organic agriculture promotion programs also aim to reduce pesticide use in combination with a stabilization or increase of crop yields [10]. In the 1990s countries such as Sweden, Norway, Denmark, Netherlands and Guatemala have decreased their annual

* Corresponding author. Arthur Mol & Peter Oosterveer:, Environmental Policy Group, Wageningen University, The Netherlands.
E-mail address: phamhoi@gmail.com (P. Van Hoi).

1573-5214/$ – see front matter
http://dx.doi.org/10.1016/j.njas.2013.09.001

pesticide use by one third, without diminishing crop yields (Edland 1997, Pettersson 1997, Pimentel 1997 cited in [10]).

But it is not only developed states that have aimed to reduce the heavy dependence of agriculture on pesticides. Developmental states (cf. [11]), such as Vietnam, have equally strived to reduce the reliance of agricultural production on highly toxic pesticides. Although such developmental states are known for their "strong arms"–in a sense of authoritatian power which leads and directs the developments, the literature seems to suggest that this strong influence is more related to economic development as such, and less to the mitigation of environmental and health effect of economic development. Developmental states were often believed to have limited state capacities and capabilities in developing and enforcing adequate state policies on environmental protection. But recent developments in China [7] and other states [12] provide contrasting evidence. This article analyses the successes and failures of Vietnamese state authorities in regulating pesticides for agricultural purposes, with a focus on the Red River delta region in northern Vietnam. How successful have Vietnamese state authorities been in regulating the environmental and health effects of agro-pesticides and what are the main causes behind any success or failure?

After outlining the main methodology, the paper discusses the history and current objectives of Vietnamese state pesticide regulation, and the main pesticide market developments. The main part of the paper is dedicated to an analysis of the successes and failures of state pesticide policies, and followed by an analysis of the role of private actors (especially farmers and retailers) in changing the pesticide market.

2. Methodology

This study uses three methodologies: a desk study of official and grey policy documents on state pesticide policies; surveys of pesticide retailers and farmers; and in-depth interviews with key informants on state pesticide policies. In total, 15 state officials from the ministerial and district levels (covering four provinces in the Red River delta: Hanoi, Hai Duong, Hung Yen, Nam Dinh) and four pesticide company owners have been interviewed, using semi-structured questionnaires. These interviews, combined with several surveys (i.e. on farmers, consumers and exporters that are mainly discussed elsewhere [13–15]), were conducted from July, 2006 to October, 2008.

To get a further and more quantitative insight into the implementation and enforcement of state pesticide policies at field level, two surveys were conducted in Hanoi, Hai Duong and Hung Yen provinces. One survey covered 45 randomly selected pesticide retailers in agricultural production areas in Hanoi, Hung Yen and Hai Duong provinces. It consisted of open and closed multiple-choice questions and focused on understanding current pesticide retailing and the relations with the state administrative system and farmers. The second survey was carried out among farmers in Hanoi and Hai Duong provinces. In each province, two agricultural communities were selected. In each community between 30 and 33 farmers were randomly selected, resulting in a total survey of 125 farmers. These questionnaires focused on agricultural practices (largely, but not solely focused on the vegetable subsector), pesticide selection and use, and farmer's perception on changes in the pesticide market.

3. The history of Vietnam's pesticide policy

Pesticides were firstly imported and used in Vietnam in the mid-1950s. From this period until the beginning of the 1980s, agricultural inputs were centrally managed and agricultural production was collectively organized. This centralized management and collective production, however, turned out to be serious obstacles for Vietnam's economic as well as agricultural development. Privatization in agricultural production–and other economic sectors–was officially endorsed by the central government through its *Open door* policy of 1986. This also marked a shift to private pesticide imports, formulation, distribution and use in Vietnam.

Since 1986 the Ministry of Agriculture and Rural Development (MARD) annually issues a list of legal pesticides. From 1992 onward, this list has been specified into three categories: permitted pesticides, pesticides permitted with restricted use, and banned pesticides. Pesticides of the second category could only be used at specific locations, for specific crops, while using strict application methods. However, initially it was not detailed on what locations/crops/application methods pesticides of this category could be used. The list of pesticides is annually updated by new (registered) pesticides. Pesticides that are banned by regulation or are not re-registered after a given time period due to poor quality and market demand will automatically disappear from the updated list. The list serves as the legal basic for pesticide imports, formulation, distribution, and use, and is of key importance for state pesticide management at local level.

In 1993, in the Decree no. 92-CP [16], pesticides gained further state attention. This Decree formed the first comprehensively legal document on pesticide management and outlined the objectives of plant protection; the requirements for pesticide production, formulation, distribution, and use; the responsibility and rights of relevant state offices in monitoring and inspecting activities related to pesticides; and the establishment of a plant protection system from central to district level. The Plant Protection Department (PPD) of MARD was put forward as the key administrative authority in pesticide policy. Besides the main aim of pest and disease control, the Decree also emphasized pesticide safety for human health, animals and the environment. To foster plant protection activities, the Decree encouraged qualified organizations and individuals into pesticide business or services. Organizations belonging to the state agroforestry sector and individuals with specified–and regularly updated–technical training on plant protection met the required qualifications for pesticide business. Advertisement of pesticides of the second category was prohibited.

To tighten the registration, import, production, trade and use of "restricted use" pesticides, MARD stipulated in 1995 that no new registration of this category of pesticides was permitted (except those used in wood industry, for disinfection and in the health care system) [17]. In parallel, all organizations and individuals using "restricted use" pesticides needed to be registered and certified [18]. These efforts have contributed to a remarkable reduction of the import of "restricted use" pesticides, i.e., from roughly 40% of the total pesticide imports in 1991 to 5.0% in 1998 [19].

However, despite this achievement illegally imported pesticides remained widely available, including those of the forbidden category, as officially admitted in Directive no. 29/1998/CT-TTg [20]. Challenged by this fact, pesticides became further regulated by the government. At the turn of the millennium, pesticides are considered "a special good with strict limitations in trade". All activities related to pesticides such as registration, import, production, export, storage, transport, trade and use were put under state regulation [21]. In addition, the Decree no. 92-CP was amended in 2002, when IPM-based pest and disease control was further emphasized [22]. Within agriculture, vegetables have received special state attention, due to high pesticide residues associated with intensive and improper pesticide uses. In 2005, MARD issued a specific list of pesticides for vegetables, containing 241 pesticide trade names out of the total 959 listed in that year [23].

All new pesticides either imported or formulated in Vietnam legally require registration at MARD. Part of the registration procedure is a field trial, which aims to determine pesticide efficacy,