

## STATE POLICY, PLAN AND PROGRAMS TO ENHANCE ORGANIC AGRICULTURE IN NEPAL

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### ABSTRACT

*Worldwide intensification of agriculture with expanding use of agro-chemicals has resulted in several problems. Pests' resistance to pesticides, their resurgence due to reduced natural enemies, pesticide residues in food, water, air and soil, degrading soil environment and ecosystem, animal and human health hazards and ultimate economic losses are known examples. Realizing the facts, organic agriculture is gaining popularity with peoples' growing concerns shifted from mere increased production and productivity to resource sustainable and eco-friendly techniques.*

*Relevant policy documents were reviewed with their content analysis. Agriculture sector policy has a realization of higher cost incurred by conventional agriculture due to agro-chemicals use and resulting public health and environmental hazards, and higher benefit of organic production due to opportunities associated with prevailing system of agriculture and ecological diversities in the country. The government, based on policy provisions and programs, is committed to promoting organic farming. However, the policy provisions, lacking adequate and integrated instruments, are too broad without clear pathways to their translation into actions. Inadequate research, extension, human resources and other supports on organic production, marketing and input supply have hindered organic agriculture promotion. Organic legislation, standardization, certification and infrastructure in such development are also major issues of policy concerns.*

### BACKGROUND

Agriculture is one of the major contributing sectors in Nepalese economy that shares 33.55% in the GDP at current price and provides employments to two-third of the economically active population (MOAC, 2010). The state, through the past development plans, has made significant efforts to increase agricultural production and productivity. Such efforts were fundamentally guided towards promoting intensive use of green revolution based technologies and off-farm agricultural inputs such as fertilizers, pesticides and improved breeds/varieties and planting materials (NPC, 2010; NPC, 2007; NPC, 2003; NPC, 1995).

Till date, fertilizer has been one of the prioritized inputs to enhance agricultural production and considered important to meet national food needs. Import and distribution of fertilizers in the country increased significantly after Fertilizer Control Order 1998 and National Fertilizer Policy 2002, decreased gradually with abolition of price subsidy on it and, following reallocation of the subsidy in April 2009, increased abruptly (Table 1).

According to PPD (2010) and PRMS (2010), average annual consumption of pesticides in Nepal is 205.2 mt of a.i. formulations valued 204.37 million Nepalese rupees and nearly 3 million dollar (Table 2). A substantially increasing expense of the country on pesticides can be expected due to ever increasing cropped area. Growing dependence of vegetables and some cereals production on imported hybrid seed is also visible in the country.

On such ground, traditional knowledge and local resources based subsistent type of Nepalese agriculture is gradually transforming to unsustainable types. The use of external inputs such as fertilizers, pesticides and hybrid seeds is becoming important to the commercial pockets being developed in the accessible areas, regardless of their deleterious effects on human health, environment, natural resources and state economy. Indiscriminate use of agro-chemicals has resulted in pests' resistance to pesticides and resurgence due to elimination of their natural enemies, environmental pollution (water, air, and soil), toxic residues in food and feed materials, depletion of soil fertility, disruption of ecosystem, animal and human health hazards and other economic losses (Pokhrel and Pant, 2009). Moreover, increasing use of external inputs added into the



production and marketing cost on one hand and deteriorated product quality and marketing competence on the other. Because of sanitary and phytosanitary requirements in export marketing that again added to the cost and the country's feeble infrastructure and institutional settings in meeting the requirements, access to export markets for the country's off-farm input based agricultural products is practically very difficult. Access to the market would be possible in case the state by law adopted pollutants free production system. This is feasible because of the country's very low consumption rate of chemical inputs and its major areas being free of agrochemicals and that urges policy makers to think alternative strategies towards sustainable agriculture development and preserving natural eco-system.

Average annual fertilizer consumption in Nepal as of 2010 (MOAC, 2010) is 123,292 metric ton that based on total agricultural land of the country (MOAC, 2011) approximates to 40 kilogram per hectare basis (Table 1), which is very low as compared to other South Asian countries (Yussefi, 2006; SAIC, 2004). Annual reports on fertilizer import and sales in general exhibit that urea and diammonium phosphate are major fertilizers recently imported and sold. Also noteworthy is distributed quantity of urea that in general is double the distributed quantity of DAP. Based on which, Nepalese farmers approximately spent NRs.23 considering the subsidized prices and the state including administrative cost and dealers' commission spent NRs.41 for an average kilogram of fertilizers. On such ground, Nepal has to spend 74 million US dollar annually. On the other hand, annual fertilizer supplies in the country during the last two decades showed a high negative correlation with net annual edible cereals productions indicating at least that the state expenditures on fertilizer import and price subsidies is not contributing much to enhanced food production. Therefore a general rising trend in food production could be attributed to factors other than formally imported and distributed fertilizer. A total of 7,133 mt. fertilizer distributed by Agriculture Input Company Limited in 2008/09 (Table 3) is concentrated in terai and a few of mountain districts with higher degree of agriculture commercialization. The distribution among the districts also does not look proportionate to their agricultural or cropped area.

Organic agriculture is an ecologically safe, economically viable and socially acceptable system based approach to sustainable agriculture (Scialabba, 1999), which is, in the recent years, gaining popularity due to public awareness on human health, commodity price and market and resource sustainability. As accepted widely, organic agriculture system emphasizes integrated use of management practices but prohibits genetically modified organisms (GMOs), opposes synthetic chemicals such as fertilizers and pesticides and discourages off-farm inputs (MOAC, 2008b).

**Table 1: Import and distribution of fertilizers (mt.)**

Year	Total fertilizer supply (mt)	Net edible cereals production (mt)
1991/92	185797	3373448
1992/93	169767	3292126
1993/94	148413	3585112
1994/95	176688	3397760
1995/96	133250	3913878
1996/97	122223	3972587
1997/98	108728	4027349
1998/99	156827	4097612
1999/00	148187	4451939
2000/01	146365	4513179
2001-02	140766	4543049
2002/03	174382	4641466
2003-04	138758	4884371
2004-05	122706	4942553
2005-06	91553	4869440
2006-07	90848	4815284
2007-08	53753	5195211
2008-09	12810	5160406
2009-10	83231	4967469
Average	123292	
Correlation		-0.71



**Table 2:** Pesticides consumption in Nepal (PRMS, 2010 and PRMS, 2007)

	Year 004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Pesticides consumption (kg active ingredient)	154082	131270	131285	347495	356346	211079
A. Agricultural Uses	152676	127893	128728	344792	353535	209478
1. Insecticides	43994	65114	46553	60282	105815	61616
1.1 Organochlorine (endosulfan)	2473	3096	8215	11046	11404	11020
1.2 Organophosphates (acephate, chlorpy-	26912	25401	24683	17709	65838	23280
1.3 Carbamates	183	1008	115	321	1100	1344
1.4 Synthetic Pyrethroids (alpha-, cyper-,	3147	31050	2640	4593	7229	5256
1.5 Botanical Products	17	4	4	2		
1.6 Mixed Insecticides	1235	1147	2290	3625	6737	7284
1.7 Others	10027	3407	8606	22986	13507	13432
2. Herbicides	6386	11030	5702	6574	11124	15683
3. Fungicides	97036	47702	74368	237372	203392	129567
4. Rodenticides	1135	1457	1808	37298	31087	2468
5. Bio-Pesticides	4	30	58	57	30	82
6. Acaricides	864	77	239	2458	2080	38
7. Bactericides	12	14	0	750	7	25
8. Others	3244	2469	0	0		
B. Public Health Uses	1406	3377	2557	2703	2811	1600
Expense due to pesticides (NRs. 000)	131023	130026	133129	272681	351673	207688

**Table 3:** Districtwise fertilizer distribution (mt.) by AICL in 2008/09 (MOAC, 2009)

Districts	Quantity	Districts	Quantity
Jhapa	62	Kanchanpur	45
Morang	253	Dhankuta	89
Sunsari	95	Udayapur	18
Saptari	0	Sindhuli	69
Siraha	54	Kavre	409
Dhanusha	129	Kathmandu	590
Mahottari	0	Bhaktapur	0
Sarlahi	26	Lalitpur	0
Rautahat	45	Nuwakot	67
Bara	18	Dhading	197
Parsa	516	Makwanpur	59
Chitwan	196	Tanahu	115
Nawalparasi	160	Kaski	128
Rupandehi	743	Parbat	54
Kapilbastu	313	Syangja	20
Dang	710	Palpa	107
Banke	1300	Surkhet	176
Bardiya	148	Doti	5
Kailali	217	Total	7133

Major part of agriculture in Nepal is by default organic. However, the products, unless formally certified, cannot be claimed as organic in the prevailing market structure. The area and number of farms known to be organic are quite low (Pokhrel and Pant, 2009) due to lack of formal reporting. Because of a considerable number of government and non-government organizations visibly engaged in organic agriculture promotion, growing acreages under coffee, tea, large cardamom, ginger, vegetables, honey & herbal products which are largely marketed as organic and growing number of supermarkets, hotels and shops trading on organic products specially in the capital city, around eight thousand of hectares in Nepal is believed brought under organic production system. With limited institutional arrangement and introduction of bio-fertilizers, bio-pesticides and improved agronomic and composting practices, there is high possibility of transforming existing green revolution oriented agricultural systems to organic types with little effort. However, the state is generally alleged to take poor initiatives in line to organic agriculture promotion including certification, marketing management and technology generation and dissemination. Relevant policy-documents were



reviewed through content analysis for a comprehensive capture of policy provisions and programs supporting organic agriculture development in the country.

#### Policy and programs on organic agriculture development

Based on organic agriculture development considerations, post tenth plan policy documents are seen different from the pre tenth plan documents. The tenth plan (NPC, 2003) is the first to spell out first some policy provision on promotion of organic farming. The tenth plan and, following it, the National Agriculture Policy 2004 (MOAC, 2008a) have adopted 'conservation, promotion and sustainable utilization of natural resources, environment and biodiversity' as one of their objectives. Since organic agriculture is an inevitable tool of achieving such, this inferred vaguely to a kind of state emphasis laid on organic agriculture.

Pre tenth plan policy documents including the periodic plans and the Agriculture Perspective Plan (1994/95-2017/18) had limited recognition of agriculture-environment relation (NPC, 1995). However, since the period some agriculture related Acts and Regulations such as Aquatic Lives Conservation Act, 1940, Plant Protection Act 2048, Pesticides Act 2049 and Regulation 2050, Food Act 2023, Consumers' Right Act 2054 and Regulation 2056 and Environment Protection Act 2053 and Regulation 2054 have some legal provisions to reduce detrimental impacts of conventional agriculture on natural resources, environment and human health (MOAC, 2008a). The Agricultural Perspective Plan (1994/95 - 2017/18) aims at increased agricultural growth through priorities on intensive use of limited inputs essentially non-organic. Despite some technology, environment, comparative advantage and high value commodity related links, the plan has no mention of organic agriculture as an option to achieve increased growth, and is principally apathetic to organic agriculture development.

Supporting organic products certification; minimizing adverse effects of agrochemicals in livestock products, land, water and other aspects of environment; improving production and usage of organic manure; enhancing local participation in food quality management and regulating use of pesticides and GMO are major contents in the National Agriculture Policy 2004 to encourage organic agriculture promotion. Following the pesticides regulating provisions in the policy, the tenth and the three year interim plan (2007/8-2009/10) laid emphases on integrated plant nutrients and pest management and indigenous knowledge and skills based eco-friendly agricultural technologies (NPC, 2003; NPC, 2007). The three-year interim plan visualizing farms' increasing dependence on pesticides, their improper and indiscriminate use on crops and adverse impacts on environment and human health recognized a need to develop and disseminate eco-friendly technologies, develop such technologies on indigenous knowledge and skills and protecting farmers' rights on such knowledge system.

Agribusiness Promotion Policy 2006 has included a policy statement to develop special zone of organic/pesticide free production; a clear strategy towards developing organic production zones is yet to be established (MOAC, 2008). Though Agrobiodiversity Policy 2007 has no mention of organic agriculture, provisions in it are complementing to organic agriculture development in the country. Mere chemical manures are not sufficient to maintain soil fertility and replenish crop removals. Recognizing such, preamble of the National Fertilizer Policy 2002 has emphasized promoting use of organic and microbial fertilizers and integrated plant nutrients system (IPNS) in addition to balanced use of chemical manures in order to prevent soil fertility degradation and fertilizers' likely negative impacts on environment. The policy had no provision for direct price subsidy on fertilizers, which has been adopted after 2009 amendment. The state has been allocating huge amount of money each year for subsidy on fertilizers, which cannot be claimed as contributing to enhanced agricultural production (Table 1). Transfer of less productive parts of such expenditure to organic agriculture development, especially in inaccessible areas, would be rational.

In line with the National Agriculture Policy 2004, the state has formed national organic agriculture standards (MOAC, 2008b) and brought them into implementation. In compliance with IFOAM and CAC guidelines, the standard contains specifications of organic agricultural production and processing regarding land arrangement, input and waste management, chemicals contamination, products storage and transfer and fair/clean/natural production. The standard has provided for establishment of an organic agriculture accreditation body, an autonomous public authority formed by public-private alliance, to regulate organic certification, which has recently come into operation. The state is yet to develop a national organic agriculture development plan with its clear vision and related strategies. Nonetheless, it has recently adopted



some policy instruments such as subsidies on exported organic product certification, on-farm manure production and use, factory based production of manure and import of manures.

### **PROGRAMS IN SUPPORT OF ORGANIC AGRICULTURE DEVELOPMENT**

Government agencies such as Department of agriculture, Nepal Academy of Science and Technology, Nepal Agriculture Research Council, Institute of Agriculture and Animal Sciences, and Tea and Coffee Development Board and some non-governmental organizations such as SSMP, SNV, Nepal Permaculture Group, SECARD, AEC and CBOs (cooperatives) and a few of donor supported projects are observed to take local level initiatives and carry out fragments of organic agriculture related activities (Pokhrel and Pant, 2009). The activities basically covered certification, awareness raising, trainings, financial and marketing supports, social mobilization, observation-tours, workshops, policy meetings and publications. Nevertheless, state agriculture research and extension systems are not yet seen to have instituted organic agriculture related technology development and dissemination activities in their regular program. Limited NGOs and private service providers are catering organic technology needs of slowly growing organic businesses and farmers' associations.

### **CONCLUSIONS: CHALLENGES AND POLICY GAPS**

Due to predominant use of off-farm inputs, Nepalese farmers frequently suffer from diversities of opportunity costs. Organic agriculture is farm-input based and resource sustainable system that when considered various costs involved can produce higher advantage compared to conventional system. However, such promotion is seen to pose several challenges to be resolved.

Rendering national products competitive in market (domestic as well as export) is very important. That is easier with organic products compared to conventional agricultural products. Setting organic norms and standards for individual products in compliance with visible markets and importing countries, developing mechanisms of product certification and quality assurance, making state agencies aware of established norms, standards and procedures and, in accordance, forming essential rules and organizations are immediate needs. Organic certification associated with product guarantee and quality assurance is rather a complicated and costly process that smallholder farmers can hardly afford. Subsidizing the cost is also not a sustainable approach. Therefore, including provisions for promotion of organic agriculture service providers such as certifying agencies, the state has to develop a mechanism that without any compromise in product quality enables access of smallholder organic producers to certification services.

Product marketing and trade should also be seen as a major challenge to make organic farming a profitable business. Quality assurance, reliable information and rules/regulations complying with buyers are prerequisites to get access in organic market and sustain there. Existing infrastructure and physical facilities including information system may not fully be supporting organic marketing and trade. Harnessing potential benefits from organic agriculture is upset by existing system of indiscriminate markets for organic and inorganic products. Relative cost of organic production is generally higher, but the prices available to organic products compared to non-organic products are relatively low in the existing market structure. Assurance of product quality, reliable information and strict rules and regulations can favor organic products in fetching higher price. In addition to that, policy matters related to subsidies on imported inputs and price discrimination between organic and in-organic products should be revisited.

'Shifting the country or parts of its agricultural area to organic system' is an issue that raises several production and food availability related questions on relevance of organic agriculture promotion. The queries in general relate risks involved, possible crop failure, reduced or potential crop yield, input management and technology and information needs. They are to be resolved by further investigations, which is a major part of agriculture research till date ignored by national agriculture research system.

Promotion of organic agriculture in Nepal is vital for its economic development, social well-being and resource and environmental sustenance. For such development, relevant policy instruments and strategies should have been adopted for managing inputs, technology, product market, information system and institutional arrangement. A small number of such provisions can be located in the existing policy



documents and accordingly, some remarkable progress is made as described earlier. However, possibly due to lack of clear state vision on organic promotion, policy formation and implementation are carried out in a much fragmented way. In general, agricultural policies and strategies related to organic agriculture are fragmented on sub-sectoral and thematic basis without clear pathways of their integration. An example is subsidy policy on manure production and import and fertilizer supply. Subsidy on certification of exported organic products and setting of such policy instrument without any organizational and institutional arrangement on issuance of such certification can also be put forth as example. Such policy provisions defy the state's commitment towards organic agriculture development. Integrating existing relevant policy instruments and activities in the direction of organic agriculture development is a major shortcoming that would be corrected with formation of a comprehensive national plan on organic agriculture development.

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