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Policy and Governance for Sustaining Livelihoods and Natural Resources in Small Farms - A Case Study in Karnataka

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ABSTRACT

Sustainable management of natural resources in small scale agriculture is a less debated issue, especially its governance aspects. Focusing on selected villages where a policy towards sustainable agriculture has been introduced in Karnataka - a state showing signs of agrarian distress; the paper discusses the governance aspects in natural resources management for small scale farming. Based on focus~~ed~~ group discussions with farmers, officials and voluntary workers, the study indicates benefits for small farmers and less developed districts from the emerging policy trend towards sustainable agriculture. We also elicit governance factors responsible for outcomes of such policies. Inclusive design and participatory governance emerge crucial along with efficacy of government officials and completeness in implementation.

Keywords: Natural resources management, Small scale farming.

JEL: Q28, Q010, Q13

I

INTRODUCTION

Analysing policies and institutions for inclusive governance is increasingly becoming relevant to natural resource management (NRM) in India - notably since the 1980s when joint forest management was pursued seriously; till recent times when rights of forest dwelling communities were enacted [Schedule Tribes and other Forest Dwellers (Recognition of Forest Rights) Act 2006 (FRA)].[1] The recent discourse on governance in NRM spans varied approaches: (a) centralised and top-down mechanisms for regulation and conflict redressal (e.g., National Green Tribunal 2010),[2] (b) community based but externally supported management regimes (e.g., water users' associations, collectives around low external input sustainable agriculture),[3] (c) self- organised regimes at the grass roots (e.g., sacred groves of Western Ghats), (Chandrashekara and Sankar, 1998), (d) co-management schemes (e.g., committees at different levels under FRA) and (e) multi-tier and polycentric governance (e.g., case of fisheries as in Ostrom and Cox (2010), institutional mechanisms envisaged under FRA and in the National Authority/State Boards for Biodiversity in India).

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Institutional studies do not prescribe specific analytical methods for looking at governance, but provide overall principles, as any framework and specific method need to be context-dependent and adaptive; attributable to the ever more complex interaction of ecosystems, institutions, policies, technologies, actors and values. Nevertheless, there are arguments for analysing the policy implementation processes in the context of clusters of actors and organisations (Sabatier, 1991); while empirical studies (e.g. Nagendra and Ostrom, 2012) show that polycentric engagements enable users to evolve rules and organisations at multiple levels. Unlike the governance issues in the context of forest resources (Murali *et al.*, 2006; Behera and Engel, 2006), applied research on institutions and governance regimes in production systems especially at regional and local levels are rare (e.g. Vorley, 2002). This lacuna looks pronounced considering; (a) the ambitious expectation of feeding more than three billion people from a shrinking natural resource base in the next four decades, (b) the rapid pace of change that the sector has undergone since 1960s in terms of technology, practices and socio-economic status of farmers across developing countries.

In the above context of lack of attention to NRM institutions in today's agriculture and a widespread concern about threatened natural resource base for farming (see Bhattacharya *et al.*, 2004 for the extent of land degradation in India) this paper discusses a potential structure for policy and governance of NRM in agriculture. First it takes a look at the modalities and potential outcomes (with respect to small scale agriculture) of an apparent transition towards sustainability objectives in agricultural policies. The next section analyses the case study in this larger context of transition while Section III identifies policy conflicts in agriculture. Section IV identifies governance, institutions and policies related to NRM in the agricultural context of Karnataka state in South-western India. This is followed by two sections that brief about study sites and methods adopted for analysing the governance in the background of a selected policy. Section VII discusses the role of governance in implementing the selected policy in small farmers' perspective, drawing final conclusions in the last section.

II

CONTEXT

Institutions in the form of law, policy or procedure; or as informal norms, standard operating practices or habits (Vatn, 2007), have recognised ~~the~~ potential to either facilitate or hinder development (Vorley, 2002). Institutions and governance mechanisms often overlap and work in tandem to attain policy objectives (Annan, 1998). That makes governance an important criterion while assessing the impact of policies through efficacy of institutional mechanisms that they set in motion; going beyond a stock taking against targets in financial achievements, number of beneficiaries or adoption rate. Institutional mechanisms and societal worldviews reshape each other being both dynamic and complementary. The analysis of

developmental governance and policies thus help evolution of governance regime/s dealing with environmental and social issues. To quote from Vatn (2007), "the idea that there is only one institutional structure that is really the best solution to any problem, and that other solutions are used only because we fall short of realizing that ideal solution, is a great obstacle against both realism and creativity when the development of regimes is at stake". We see this concern reflected in the governance and institutions in Indian agricultural scene.

In the evolutionary context of a small holder dominated agricultural scene in India, intensive use of external inputs has been institutionalised over the past few decades. A mismatch between the technologies promoted by the government *vis-à-vis* the requirements of a large section of small farm holdings in India is evident in both data and literature on agricultural performance. The explicit focus of government executives as well as researchers and agencies generally rests on statistics like crop yield (and income) per unit land or labour, fertiliser or pesticide consumption per unit area etc. (e.g., Government of India, 2009; Mathur *et al*., 2006; Misra and Govinda Rao, 2003) than information like preferences of farm families, the number of farmers who joined or abandoned the profession, how change in policies affect practices and farm families, trends in distress across varying agricultural governance regimes etc. This is despite the fact that, Department of Agriculture is the most visible public line agency in India that is decentralised in many ways (see Vaddiraju and Sangita, 2011; Shivanna, 2001). Decisions made by the farmers in managing their resources and short or long term productivity could be driven by the institutions that are active in the sector, while these institutions themselves continue to be driven by government policies - mainly those from the Department of Agriculture.

Despite increased food production with the advent of Green Revolution, for the past 15 years India has been a net importer of agricultural food commodities (Ng and Aksoy, 2008). The problems of shrinking size of holdings, expansion of commercial crops (and non-profitability of traditional crops), increasing indebtedness and vulnerability to the market forces are visible in Indian agriculture (Nadkarni, 1986, Ram *et al.*, 1999, Misra and Govinda Rao, 2003). Growth in agricultural output has been slowing since 1990s (Fan and Chan-Kang, 2005) putting serious pressure on the income and livelihood of smallholders (Chand *et al*., 2011), while continuing to trigger and intensify ecological impacts including shrinking forest cover, loss of agricultural biodiversity, depleting ground water levels and contamination of water bodies (Matson *et al.*, 1997; Singh, 2000). Policy responses to mitigate the above mentioned diverse problems in agriculture have typically been in the same direction for a long time - subsidies for seeds, fertilisers, power, irrigation, credit, loan waivers or relief packages and investment in agricultural research as well as technology extension. Informed governance strategies taking into account the multi-functionality of agrarian land use and trade-offs between various ecosystem services from them are still conspicuous by absence in these policy responses.

III

STATE, CENTRE AND POLICIES FOR AGRICULTURAL NRM

The agrarian situation in the south-western state of Karnataka is reflective of the rest of the country. The share of agriculture (only crop cultivation excluding allied activities like forestry, livestock, poultry etc.) in GSDP of Karnataka declined from 11.9 per cent in 2007-08 to 5.9 per cent in 2010-11 (Government of Karnataka, 2010-11), while 70 per cent of its population continued to depend on agriculture for livelihood. From 1960s till 1990s, agriculture in the state was intensively practiced with more land under commercial crops than food crops, while during the last two decades it witnessed significant shift in acreage from commercial non-food crops to horticultural crops (Purushothaman and Kashyap, 2010). These changes in the cropping pattern have had implications on farm practices including type and quantity of inputs used (see Pingali, 1997, for Asia in general). The sectoral problems are manifested in declining public investment in agriculture, shrinking farm size and persisting farmers' suicides (Deshpande and Prachitha, 2005). In order to ease the crisis, the state government introduced various policy measures that included measures to encourage efficient natural resource management with emphasis on balancing ecological and livelihood dimensions of farming. As these measures deviate from the conventional productivity oriented schemes like subsidies for imported technologies; they also needed unconventional mechanisms for implementation. The governance pattern adopted by the state for such policies is traced below.

Since 'agriculture' as well as 'land use and planning' are both state subjects (the central government has less direct control over planning and execution), individual states are responsible in principle, for the conservation, development and management of land and agricultural resources. This however is not manifested in the planning and fund allocation for different farm sector programmes on the ground, as the central policies of procurement prices and technology missions (for specific crops, driven by inflationary tendencies) drive crop selection, though state departments are free to plan, strategise and decentralise their mandates to lower levels of administration. Most states have established agencies to plan and implement various NRM programmes in watersheds and wastelands with financial and technical support from national or international agencies in the government or non-governmental sectors. Apart from these schemes with potential direct impact on agricultural resources, there are various policies at different scales and sectors that impact the agricultural socio-ecological system (Purushothaman *et al.*, 2012a). Although this means a diverse set of institutions and actors impacting NRM in agriculture, the key players determining the outcome of farm policies are the Government of Karnataka, Government of India, Non-Governmental Organisations (NGOs) active in the agricultural sector and the farming community. Agricultural NRM in Karnataka is shaped by the way any/all of these institutions interact and

form a self-reinforcing loop**.** Although the scale and sectoral dimensions of different policies and institutions interplay with each other towards the actual outcome, the Department of Agriculture (both at the centre and the state) act as the key nodal actor for any policy. Most common instruments employed by this nodal department are subsidies, direct payments, outreach and contact programmes.

Generally the relative quantum and direction of incentives as subsidies vary between explicit and implicit instruments (Acharya and Jogi, 2004). Explicit input subsidies are payments made by the government to the farmers (or to the agents who supply the inputs) to meet the cost of an input. Instead, with an implicit subsidy, input prices are administratively determined especially if cost of production of the input is much more than its market price. This invisible subsidy supports industrial producers of chemical fertilisers. We consider the implicit subsidy to chemical fertilisers as 'institutionalised mainstream incentive' as considerable public interest and government expenditure are involved (Fan *et al.*, 2008).[4] These remain true while budget allocations in other directions especially towards NRM policies, like National and Regional Centres of Organic Farming[5] remain relatively marginal.

Nascent attempts to support sustainable farming by the Karnataka State Department of Agriculture provide an example of potential NRM strategies with better financial commitments from the state government. For instance, introduction and implementation of targeted agricultural schemes like State Organic Farming Mission, Karnataka State Policy on Organic Farming (KSPOF) and NRM components in various technology and crop specific missions. The stated objectives of such policies are both ecological and socio-economic, aiming at ensuring and sustaining food and nutritional security and soil fertility, as well as avoiding indebtedness.

Thus in a nutshell, when the state department is beginning to invest in promoting sustainable practices and optimum use of natural bio-mass in small farms, the central policies (and corresponding mechanisms in the states) pull in the opposite direction, with incentives to procure implicitly subsidised chemical inputs. Generally influenced by industries and politically powerful large farmers, these opposite forces could have a dampening effect on the outcome of state policies towards sustainable agriculture. It appears that while sustained productivity of land is a local concern, increasing food production and lowering food prices is priority for a federal authority. Thus through decentralised institutions and polices, NRM in primary production landscapes is a suitable approach to accomplish the mandate of local developmental action. However, it needs to act against conflicting centralised policies and lobbies for industrial inputs.

These recent agricultural policies in transition towards a focus on sustainability, originate mainly with state government as a mixed bag of financial, technological and social interface between target groups and local implementing agencies. They can potentially affect a range of stakeholders (Purushothaman *et al.*, 2012b) positively and negatively, with varying magnitude. The hub of impacts (Figure 1) developed

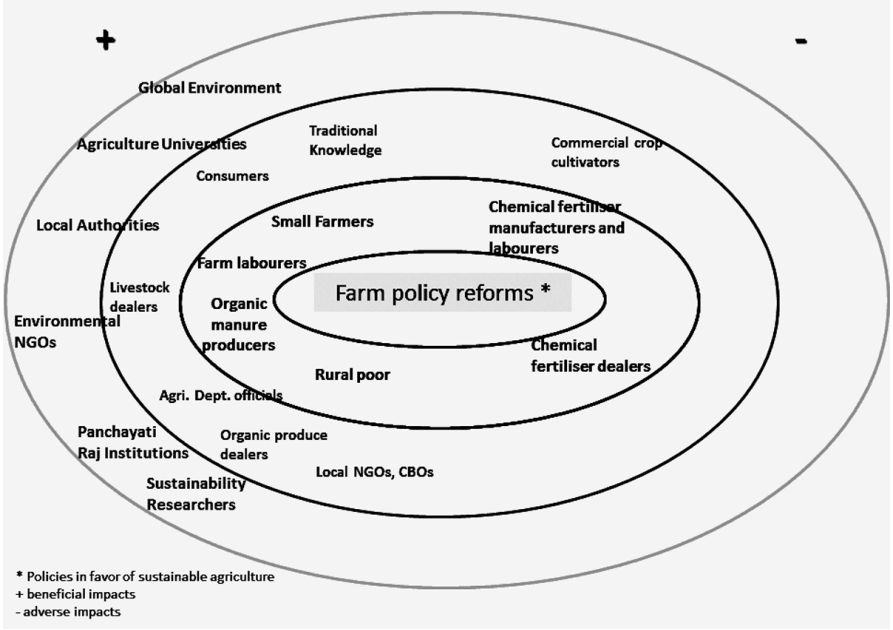

Figure 1. Impact Hub for a Farm Policy Reform

during the study from various interactions (process of interactions described in Section VI) depicts institutions, individuals and agencies that are affected (both positively and negatively). The most affected are placed closer to the core and the positively impacted are placed on the left side. Only individuals and corporates dealing in manufacture and supply of chemical fertilisers could be affected adversely that too only in financial terms, as they also would benefit from healthy farm products. On the other hand, a host of organisations and individuals get benefitted from expansion of sustainable agricultural practices.

IV

GOVERNANCE AND IMPLEMENTATION OF POLICIES FOR AGRICULTURAL NRM IN KARNATAKA

The above mentioned transition in the focus of farm policy manifests itself both in terms of policy content and method of implementation, apart from increasing budgetary allocation. Budgetary support allocated for subsidies for organic inputs across various schemes increased by nearly 20 per cent in Karnataka in the period of four years from 2006 to 2010.[6] The budget outlay for all schemes under policies on organic farming increased from ` 7 crores in 2006 to ` 120 crores in 2010 and to ` 200 crores in 2011.[7] Given the societal objectives outlined in the policy statement and the apparent spatial and budgetary expansions in this direction, amidst the crisis looming large in the sector, institutional mechanisms needed for successful implementation of such policies appear to be insufficiently deliberated. The

definition, context and implementation of such policies evoke interest also because the history of policy formulation involves formal recognition of certain failures in green revolution strategies. A third reason why these issues deserve attention is the low-key central support for such policies (compared to what is available for industrial scale synthetic inputs) making it a case to be analysed for potential strategisation of a socio-ecologically progressive policy change at sub-national scale.

Karnataka State Policy on Organic Farming (KSPOF)[8] was formulated in 2004 as the first policy in this direction in Karnataka and introduced to address the crisis in small scale farming. Since 2006, the number of farmers registered under the organic farming policy has grown five-fold. The official off-shoot of the popularity of this policy (and others with some support for organic inputs) is another initiative by the subsequent government in 2008 - the 'Karnataka State Organic Farming Mission' with considerable budgetary allocation aiming at reducing indiscriminate use of chemical fertilisers and pesticides and to provide healthy food to the people. The most ambitious and far-reaching objective of the above two policies (though currently there are changes on the anvil as discussed in the media) with varying governance mechanisms is to revive the rural economy that is intricately linked to agriculture, by offering rural youth an alternative to migrate to cities.

Karnataka State Policy on Organic Farming (The 'Organic Village' Scheme)

Given the above broad picture of policies and institutions around NRM in agriculture, in order to inquire into the governance concerns raised in Section II, we focus on the state policy on organic farming in Karnataka (KSPOF) as an example of a policy towards sustainable agriculture. Though small in the initial budget allocation (` 7 crore in 2006), KSPOF provides a clear deviation from the conventional dependence on high tech inputs, technology or practice and offers more than tokenism to small holders. In the background of increasing cost of cultivation, shrinking size of land holding, persistence of rainfed farming, soil degradation and trends in corporatisation making agriculture an unequal game for the small holder, it advocates reduction of market dependence for most of the inputs, improvement in farmers' income through improving quality of produce, and increase in rural employment opportunities. The policy was implemented initially in one selected village each in all districts of the state and later (in 2006) it was scaled up to one village per taluk.

The incentives formulated in 2004 for organic manures and pesticides continue to be distributed to farmers, and partnering NGOs are being supported for training and guidance offered to the farmers, while new schemes are also emerging with similar incentives (e.g. National/State Horticultural Mission; Regional Centres on Organic Farming). The policy does not advocate immediate and complete conversion to certified organic farming, but intends to provide support (technical, financial and networking) for those who want it. The process of implementation of KSPOF entailed

that the Department of Agriculture select a partner NGO and a village in each selected taluk. Generally the NGO is selected based on its experience in the agricultural sector and local acceptance. Next, the government department together with the NGO choose a village to implement schemes under the policy in accordance with several factors – farmers' interest in organic practices and livestock rearing, number of households, crops grown etc.

In line with the argument that organic practices in the current agricultural scene are knowledge-based (Das, 2007), appropriate management practices were supposed to be developed under the policy and improved constantly, depending on locally available and most relevant inputs for local crops. For this to happen, convincing a conventional farmer on the benefit of moving to and sticking with the practices, as well as evolving techniques constantly, were crucial. This was the expected role of NGOs – to be instrumental in organising trainings and interactive sessions, exposure visits, and in providing help and advice available in the village for implementing various components of the policy – vermicompost, azolla culture, mulching, organic pesticides, livestock keeping for manure, local crop varieties and so on. Partnering NGOs were also instrumental in generating socio-economic and agricultural benchmark data for the 176 villages selected for the policy.

Given the bulky quantum and wet storage needed for organic inputs, production and distribution of these inputs need to be in areas proximate to farms. For incentivising the production and distribution of this kind, grassroots agencies and local governments are best equipped. It is recognised that the kind(s), quantum, time and method of application of organic inputs as well as ways to produce the most locally appropriate inputs envisage constant research and field level interactions. Thus KSPOF put in place new governance and implementation mechanisms involving diverse agencies engaged in horticulture, watersheds, sericulture, education, animal husbandry, fisheries, marketing, co-operatives and the agricultural universities as well**.** Like other government schemes, KSPOF too is not free from problems including reported bias in selecting villages and partner NGOs as well as other irregularities. But as mentioned earlier, the study is not about the performance of the policy *per se*, but about its governance mechanism to take a look at the role that governance and institutions can play towards the outcomes of NRM polices in agriculture.

As mentioned earlier, KSPOF (henceforth referred as 'the policy') was unique; in its origins, (originating from the state and not from the centre),[9] with respect to the objectives (of diverting from the mainstream bipolar policies supporting either chemical or 100 per cent certified organic farming) and governance strategies (involving voluntary agencies and locally adaptive techniques). Unlike KSPOF, that had formal involvement of local NGOs, the organic farming mission that emerged later, focused on facilitating organic farmers' associations without involving grassroot NGOs.

In terms of continuity of the practices popularised by the policy as well as awareness on the benefits and the schemes under the policy, the paper will now look at the success and failures of KSPOF with its multi-agency governance mechanism, based on a detailed assessment during 2009-10 in selected study areas.

V

SELECTED STUDY AREAS

We conducted the study in the same sites chosen for an assessment of multi dimensional impact of organic farming policies (Purushothaman *et al*., 2012c). The selected districts[10] for the study (Figure 2) are located in different agro-climatic zones having different environmental, economic as well as societal characteristics (Table 1). Bijapur is the largest but least developed while Udupi the smallest and the most developed among the five study districts. Chikballapur has the smallest holdings and Mysore has the highest density of population while Chitradurga topped in famers' suicides during the period compared. Thus, out of the 176 villages where the organic farming policy was being implemented, 14 villages (across five selected districts) were finally under scrutiny for this study.

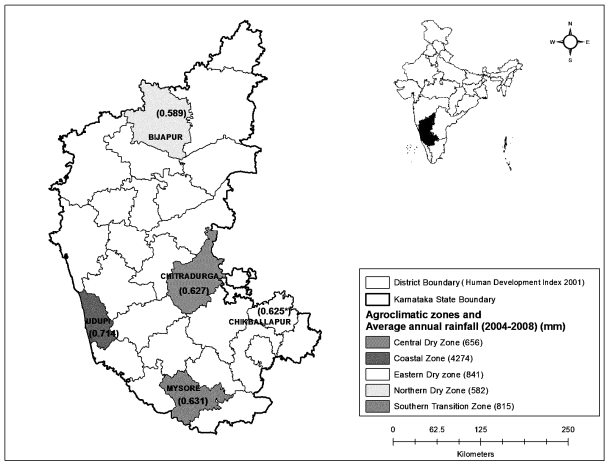

Figure 2. Study Sites in Karnataka

Table 2 summarises the temporal changes in land use and cropping pattern in the selected districts. Most of them show an expansion of agriculture, substituting other land uses and change in crops away from millets and pulses. The trends indicate possible signs of location-specific specialisation in crops during liberalisation period (post-1990s) in tandem with technology missions for selected crops that significantly correlate with the argument on institutionalised intensive cultivation of commercial crops. With expansion of irrigation, sugarcane cultivation expanded in two districts. Other factors like market access, good demand, subsidised seeds and credit availability also influenced cultivation of certain crops. The studies of

TABLE 1. SELECTED FEATURES OF STUDY DISTRICTS

(1)	Bijapur (2)	Chitradurga (3)	Chikballapur (4)	Mysore (5)	Udupi (6)
Geographical area [a] (ha)	1053,471	770,702	404,501	676,382	356,446
Average size of operational land holding [a] (2005-06) (ha)	3.03	2.05	1.15[e]	0.97	0.78
Net sown area [b] (2008-09) (per cent)	71	51	26	49	26
Net irrigated area [b] (2008-09) (per cent)	35	19	25	47	33
Fertilisers distributed [b] (N+P+K, kg/acre of net sown area) (2009-10)	92	72	221	229	69
Population density [c] (2011) (per km^2)	207	197	298	437	304
Farmers' suicides [d] (2003-07)	408	1058	241[e]	383	192
No. of farm holdings [b] (2006-07)	319,689	282,375	417,815[e]	371,042	197,401

Notes: [a]Directorate of Economics and Statistics; [b]Department of Agriculture, Government of Karnataka; [c]Census of India 2011; [d]State Crime Records Bureau, Government of Karnataka; [e]Combined for Kolar and Chikballapur.

TABLE 2. CHANGE IN LAND USE AND CROPPING PATTERN IN THE STUDY DISTRICTS (IN DECREASING ORDER OF ACREAGE)

(1)	Bijapur (2)	Chitradurga (3)	Chikballapur* (4)	Mysore (5)	Udupi# (6)
Land use change (1976 - 2005)	Increase in net sown area	Increase in agricultural land, Decrease in forest land and pasture	Decrease in pasture and fallow	Increase in net sown area and fallow. Decrease in pasture	Marginal increase in net sown area
Most common crops (1985)	Jowar, oilseeds, pulses, bajra	Oilseeds, jowar, pulses, bajra	Pulses, oilseeds, paddy, maize	Pulses, jowar, oilseeds, paddy	Not available
Most common crops (1995)	Jowar, oilseeds, bajra, pulses	Oilseeds, ragi, jowar, pulses	Oilseeds, ragi, coconut, pulses	Paddy, ragi, pulses, cotton	Paddy, fruits, coconut, pulses
Most common crops (2006)	Oilseeds, pulses, jowar, sugarcane	Oilseeds, coconut, maize, onion	Oilseeds, maize, fruits, eucalyptus	Pulses, paddy, tobacco, sugarcane	Paddy, fruits, coconut, arecanut

Source: Reports for various years of Directorate of Economic and Statistics, Government of Karnataka.
*Data for erstwhile district of Kolar.
Data available only from 1998 when it was formed as a new district.

Purushothaman and Kashyap (2010) and Purushothaman *et al.* (2012a) provide insights on commercialisation of agriculture that ignored the socio-ecological aspects during the liberalisation period.

VI

METHODS

The study adopted a systematic inclusive process to assess the impact of KSPOF, using Focus Group Discussions (FGDs) separately with farmers, NGO staff and department executives responsible for policy implementation in each of the selected

14 villages.[11] Annexure 1 provides the set of questions deliberated in FGDs. Field walks with randomly selected small farmers and mapping of policies (other policies that have similar or contradictory impact) as well as institutions [formal (research, executive and outreach agencies) and informal (collectives)] preceded the FGDs.

Considering the short span of three years since the policy was implemented, we focus on two parameters (viz., awareness and continuity) of impact along with indicators like completeness in implementation, efficacy of staff involved as also factors like collective action and homogeneity; to reflect on the impact of the mechanisms that implemented KSPOF on the ground. Ideally, the impact of such a policy should be adjudged also by the changes in soil productivity and the welfare of farm families in the longer run (short to medium term impacts on these are analysed in Purushothaman *et al.*, 2012 b, c and Patil *et al.*, 2012). The two parameters/criteria (degree of awareness and probability of continuing with organic farming) were derived from discussions with farmers, NGOs, and Agricultural Officers (AO) specific to the 14 selected villages. While the first parameter (awareness levels) can directly be traced to the work of the NGO and agricultural officers, the second one (continuity of organic practices after the NGOs exit and subsidies stop) is subject to many other contingent conditions, like availability of inputs and suitable planting materials. Both are nevertheless affected by governance strategies and mechanisms - in the design of support, rapport of NGOs with farmer communities, efficiency of executive officials and the department (in timely release of incentives avoiding high transaction costs for farmers).

Other more generic symptoms of good governance, not specific to the selected policy (like timely release and utilisation of funds from higher offices in the line agency) are out of scope of this study and focus is only on the impact of governance mechanism at the grassroots on the stated policy goals. The next section presents the results of FGDs conducted (method described in Section VI) in the selected villages (selection described in Section V) with this objective.

VII

ANALYSIS AND DISCUSSION

Conventional agricultural governance at the grassroots has been through extension agencies that are geared for spreading experimental results through programmes like ‘lab to land’. This reflects the conventional wisdom in agricultural policies that whether it is technology development, education, research or extension, completely new and sophisticated techniques are necessary. Such tools often originating from very different socio-ecological contexts, trigger treadmills of technology dependence (for instance, crops from new technologies in need of technology intensive inputs and practices, in-turn depend on more technology). Needless to say these have been mostly of help to large and resourceful land holders (Suri, 2006). It appears that the education, research and extension systems in Indian agriculture are inclined and geared towards foreign ideas, technology and curriculum.

This predicament, one could argue, is partially responsible for the mismatch between the requirements of large chunk of small farm holdings (that are unique to the country) and the major investments that happened in policies, research and education.

KSPOF in this context is a deviation from the mainstream. We have assessed six indicators (or factors) of governance of this policy (Table 3). Potential continuity and improvement of indigenous practices envisaged by this policy and awareness generated during its implementation are assessed from farmers' responses to concerned queries during FGDs in selected villages. To evaluate the extent of implementation of the policy, we took the number of schemes under the policy that were implemented in the concerned village from one stakeholder group (of the three stakeholder groups and FGDs in each village), which was cross verified with the other two groups. NGO efficiency was evaluated from the response of farmers and AOs and supplemented by our observations on the actual outcomes of their expected roles. Similarly efficiency of the AOs was assessed based on statements from the other two groups. Collective action, in terms of group activities like self-help groups, co-operatives and cultural programmes; a factor that was influencing the policy outcome (in terms of spread of practices and evolution of technologies) was verified both with farmers and NGOs. Homogeneity, another contributing factor as identified in the policy (albeit outside the purview of policy implementation) was measured in terms of caste diversity[12] in the village.

TABLE 3. GOVERNANCE FACTORS AND IMPACT OF KSPOF

District (1)	Village (2)	Continuity of organic practices (3)	Awareness among farmers (4)	Policy implemen-tation (5)	NGO efficacy (6)	Department officials' efficacy (7)	Collective action (8)	Homogeneity (castes) (9)
Bijapur	1	+	+++	++	+++	-	-	-
	2	+++	+++	++	+++	++	++	+
	3	+	+++	++	++	-	-	-
Chitradurga	1	+++	+++	++	++	++	++	-
	2	+	++	+	++	++	-	- -
	3	+++	++	++	+++	++	+	+++
Chikballapur	1	-	+	-	+	+	+	-
	2	-	+	+	+	-	+	- -
	3	+	+	+	+++	+	+	-
Mysore	1	+	+	-	+	+	+	+
	2	++	+	+	+++	+	+	+++
	3	-	-	+	+	-	+	-
Udipi	1	+++	++	+	++	++	+	-
	2	+	+	-	+	-	+	-

Improvement / Better: + = 20 per cent or less , ++ = 21 per cent to 74 per cent, +++ = 75 per cent or more.
Decline / Deficient: - = 20 per cent or less, - - = 21 per cent to 74 per cent, - - - = 75 per cent or more.

FGDs with NGOs, AOs and farmers who were partaking in the implementation of the policy, imply that a reasonable level of awareness has been raised across all implemented villages, though outside the group of participating farmers and outside selected villages, the level of awareness varied. As far as the major question of

continuity is concerned, only farmers from four out of 14 selected study villages declared that organic farming practices will be continued, seven villages were unsure and three villages were clear about discontinuing the practices after NGOs leave and subsidies stop (Table 3). The three villages where FGDs revealed possible discontinuation of organic practices once the external support ceases, were also the places (among the study sites) where the factors affecting policy outcome were not performing well (Table 3). All these three villages fall in districts closer to the city of Bangalore than the other study districts and FGDs also reveal that continuity of the practice is influenced by institutional and governance factors as much as by proximity to urban areas.

In spreading awareness about organic farming policy, NGOs and AOs were most successful in four villages, somewhat successful in two and just imparted minimal awareness in six villages. In rest of the two villages, even bare knowledge of the policy was doubtful. With respect to the implementation of the policy in its full form (in terms of declared schemes to be implemented), only five villages received all the schemes while another set of five villages saw some schemes implemented and in four villages none of the schemes were implemented well. NGOs were adjudged efficient in performing their roles in five villages, average in three and of minimal presence in six villages. Agricultural officers (AOs) were somewhat effective in spreading information about the schemes available under the policy in four villages and in the rest, were not up to the expected levels. In 11 villages, collective activities around agriculture and other developmental schemes were prominent but the remaining three villages lacked cohesion required for group actions, while most of the villages (10 out of 14) were caste heterogeneous.

Factors like awareness among farmers about schemes, degree of implementation, efficient functioning of NGOs and department officials' effectiveness were very important for a possible self organisation of farmers to continue the new practices without external support. Collective activities and caste homogeneity apparently have not influenced this potential. Though collective activities and homogeneity appeared to be less significant in determining the continuation of organic farming, the villages where collective action was observed showed potential for continuity. The lowest potential for continuity was observed in districts where department officials were not effective – in terms of continued availability in their office and in the village; as well as due to many posts lying unfilled. This probably indicates that NGO efficacy can only facilitate, but not substitute governance by the executive agency. The following section discusses the results in detail with a focus on small scale farmers.

Small Farmers and NRM

FGDs revealed that while traditional know-how and practices in organic farming are almost extinct, formal rules for organic practices show signs of potential emergence as innovative and resourceful strategies in the policy guidelines. Thus,

these practices now getting popular are not a 'going back to old times' as traditions vary from place to place (e.g., farmers in hilly areas tend to practice organic farming even without special incentives) and from crop to crop (e.g., there are crops that farmers apply more organic manure – areca and certain varieties of grapes) as also due to the fact that alternate farming traditions have been evolving over time, albeit in pockets – natural farming, bio-dynamic farming and Low External Input Sustainable Agriculture (LEISA) are examples. Out of the new farming traditions LEISA is more popular among small farms while the other two are generally practiced by large land holders, growing high value crops like coffee.

NGOs implementing the policy found that the small farmers want to emulate large holders in the selection of crops (that mainly target markets) while struggling to ensure food and nutrition for the family. There were also informal norms emerging in tune with the institutionalised and most prevalent chemically intensive practices. These include setting aside some crop area under organic practices for the family's own consumption, resonating the idea of 'inputs from markets to raise products for the market', raised during FGDs in study villages. Most farmers refer to the inputs procured from market as "*english* manure/ medicine" as against "local manure".

Unlike the other two groups (NGOs and AOs); farmers do not confine the discussions (in FGDs) to just the policy under study but tend to link related and similar policies from the same or other departments. They also link policies to changes that had taken place in the land use and cropping pattern in their villages. They apparently kept track of the efficacy of governance as revealed by discussions on policies that are locally considered best in terms of implementation. Farmer FGDs appreciated the governance mechanism involving local NGOs in implementation, relatively transparent process and the focus on small farmers. Most FGDs also highlighted why it is more important for the small holder (than large/corporate farms) to adopt organic practices considering the possible reduction in costs and financial risks;[13] as well as readiness, availability and sufficiency of family labour for the small land area especially in the background of the high proportion of expenses incurred on food and nutritional requirements. Although they recognise the schemes under KSPOF as having helped raise crop yield and reduce cost of production, concerns were raised about the availability of farm yard manure due to shrinking livestock numbers and available biomass in and around their field. The policy provisions to support livestock keeping, azolla culture and composting so as to augment manures produced *in-situ* have been benefitted by the governance and institutional mechanisms put in place involving active NGOs and farmers.

The integrated approach of the policy involving many interlinked agencies working together towards a common goal instead of forming a new establishment takes cue from the 'form following functions' rule (Schroeder *et al*., 2008) that also expects unintended consequences arising from institutional interplay. The unintended consequence in some regions where KSPOF has been implemented was reported as

substitution of food crops with commercial crops (Patil *et al*., 2012), potentially impacting the household food and financial security.

Urban expansion can change cropping pattern to cater to the demand of high income population in the city. These exotic crops generally need intensive use of external inputs. But if institutional and governance factors work well, even transition to new crops could be made less damaging to the small holder – in terms of suitably modified organic practices.

VIII

CONCLUDING REMARKS

Notable awareness on NRM issues among farmers across villages where the selected policy was being implemented is a clear pointer to the potential of joint involvement of diverse institutions when dealing with the socio-ecological issues of rural India. Our results also indicate that institutional efforts in promoting sustainable agricultural practices were relatively more effective in less developed districts. Efficacy of the executive arm of the government as well as completeness in the implementation of all schematic components emerge crucial in spreading NRM for sustaining small farms. Very few agencies involved in manufacturing and dealing in chemical fertilisers were identified to be negatively impacted with the policies aiming at sustainability of agriculture.

The methodological approach of the paper though tailored to the intention of identifying institutional gaps (in terms of governance) and failures (e.g., in terms of conflicting policies) demands contextual design of actual tools to be used in the field; also echoed in Das (2007) in a related but distinctly different context of certified organic farming in India. Extensive primary and secondary data collection for a multidimensional impact assessment (Purushothaman *et al*., 2012a,b) prior to the FGDs provided us with the required understanding to design this tool for the context.

The idea that 'the people have to be seen as being actively involved in shaping their own destiny, and not just as passive recipients of the fruits of top-down development programmes' (Sen, 2000) is apparently reinforced in the paper. From this perspective, the most far-reaching aim of development is an increase in the social *agency* of a particular social group. This so-far invisible goal of policy implementation has been highlighted in other studies where farmers apparently prioritise not just the economic aspects, but also health, occupational satisfaction, social activities and water resources (Purushothaman *et al.*, 2012b). Thus inclusive design and participatory governance emerge crucial in agricultural NRM for sustaining small farms in terms of livelihood and ecological outcomes as well as social acceptance.

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NOTES

1. http://tribal.nic.in/writereaddata/mainlinkfile/File1033.pdf accessed on 4th June 2012.
2. http://www.greentribunal.in/downloads/NGT-fin.pdf accessed on 5th June 2012.
3. http://leisaindia.org/.
4. According to Gulati and Narayanan (2000), relative share of farmers and industries in the central government fertilizer subsidy changes over time. Last two decades show increasing share of the industries.
5. In 2004, National Project on Organic Farming (NPOF, by Task Force on Organic Farming supported for capital investment by NABARD) received INR 57.05 crore while subsidy for chemical fertilisers was INR 10, 616 crore; in 2008-09 the allocation for NPOF was INR 164 crore, while subsidy for chemical fertilisers was INR 75, 849 crore. (Sources: Organic Farming Policy 2005, Ministry of Agri. Department of Agriculture and Cooperation (Memorandum for Expenditure Finance Committee on NPOF, Fertiliser Association of India - Annual Reports).
6. http://www.kar.nic.in/finance/bud2010/budhig10e.pdf and Karnataka State Annual Budget 2011-12
7. Allocation for KSPOF continued from 2006 to 2010, and from then on was subsumed under the allocation for the organic farming mission.
8. http://raitamitra.kar.nic.in/kda_booklet.pdf
9. The policy is said to have originated from discussions that the then State Minister of Agriculture held with farmers in distressed taluks of Karnataka and was drafted by a visionary secretary in the department.
10. The selection was (as in Purushothaman *et al*., 2012b) based on an iterative and participatory analysis of change in land use, cropping pattern and farmers' suicides in all districts of the state as well as considering agro-climatic diversity, and the need to have control areas for the criteria considered in temporal analysis. Three taluks in each of the five selected districts (except in the case of Udupi, where only two taluks were chosen given its relatively small size) were chosen following the same procedure that was adopted for districts.
11. Groups of farmers had 10-15 individuals while NGO representatives were 3-4 and department officials generally 2, in each village.
12. Considering the fact that cast is a major identity in rural Karnataka, the number of castes constituting 20 per cent or more of the households in the village, denotes heterogeneity in the village.
13. The financial impacts in the short, medium and long run (Patil *et al.*, 2012, Purushothaman *et al.*, 2012 b, c and d) for farmers involved in this policy have shown insignificant reduction in crop yield (often no reduction in yields too) and considerable cost reduction. This supports Nadkarni's (1988) argument while questioning the assumption that sufficient manure cannot be produced on-farm to meet crop requirement as the basis of expecting yield reduction in transition. Yield reduction is a possibility if same varieties grown with synthetic inputs are grown in the same soil without adequate organic manure and other practices to recover soil. Also, yield reduction has been universally observed where inorganic inputs have been used continuously and intensively.

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ANNEXURE 1

CHECKLIST USED IN FGDS

1) Group interactions with farmers:
    1. Trends in conflicts:
        i. Village level (driven by caste, alcohol, property, politics, gender)
        ii. Household level (driven by alcohol, property)
    2. Incidence of conflicts / violence – number under each category for the past one year
        i. Village level (driven by caste, alcohol, property, politics, gender)
        ii. Household level (alcohol, property)
    3. Collective actions:
        i. No: of SHGs (gender and purpose wise)
            a. Extent of involvement (women and lower castes) in each
        ii. No: of festivals (common to all the villagers and community specific) in the background of number of castes in the village
    4. Disparity
        i. Trend (in caste, income and assets)
        ii. % of households (of two adults) with land > 5 acres
        iii. % of households earning more than ` ---/ year
    5. Perception on policies:
        i. Schemes/ policies for rural poor
        ii. Rank the above list in terms of effectiveness
        iii. Schemes that help mainly the rich/ better off
    6. Perception on institutional effectiveness: government department of agriculture, NGOs and collectives
    7. Any other comments on KSPOF than those mentioned so far
2) Interaction with officials in the Department of Agriculture and NGO functionaries:
    1. Policies that help/helped rural poor
    2. Rank the above list of effective policies
    3. Policies that help mainly the rich/ better off
    4. Factors that affect effectiveness and continuity of KSPoOF
    5. Trends in conflicts:
        i. Village level (driven by caste, alcohol, property, politics, gender)
        ii. Household level (driven by alcohol, property)
    6. Incidence of conflicts / violence – number under each category for the past one year
        i. Village level (driven by caste, alcohol, property, politics, gender)
        ii. Household level (driven by alcohol, property)

Checklist was devised after informal interactions on specific questions about KSPOF. Interactions revealed that it was difficult to discuss just one policy with farmers and hence the list was modified to be more broad-based, but leading eventually to the particular parameters adopted to analyse implementation of KSPOF.