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Physical and financial progress of krishi bhagya scheme in Karnataka state

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Abstract

Krishi Bhagya Scheme has been an ambitious flagship programme of Government of Karnataka launched during 2014-15 and Krishi Bhagya Scheme introduced by the Government of Karnataka state to help farmers through by making dry land farming. The scheme exhibits special features of convergence and integration of various activities in farming especially water management. Both primary data and secondary data were collected from various published sources. In this regard, the present study is an attempt to analyze the physical and financial progress of Krishi Bhagya Scheme (KBS) in Karnataka State. Construction farm ponds took away a major share in the total amount spent for of Krishi Bhagya Scheme (KBS) in the state. The study revealed that, most of the components have been implemented in the first two years and also inferred that physical progress was more in the initial years. In terms of financial progress construction farm ponds took away a major share in the total amount spent for Krishi Bhagya Scheme (KBS) in the state. One of the Important advantages as expressed by the respondents was the increased water storage facility most important and also the major problems as expressed by the respondents was the problem with material suppliers and service providers. Krishi Bhagya Scheme is demand driven due to its popularity the state Government has made adequate financial resources available.

Keywords: Krishi bhagya, farm pond, physical, financial progress

Introduction

Karnataka is predominantly an agrarian state, where in nearly 70 per cent of the cultivated area is under rain fed farming. There are ten agro climatic zones in the state of these; five agro-climatic zones receive an average annual rainfall ranging between 450 to 850 mm, which has become more erratic in the recent years. These zones account for 63 per cent of the total geographical area of the state (120.3 lakh ha) and only about 60 per cent area is under cultivation (74.5 lakh ha), the remaining 40 per cent is barren or uncultivable or under fallows.

Percentage of gross rain fed area in these five zones ranges from 55 to 76 per cent. It is 76 per cent in Northeastern Dry Zone, 74 per cent in Central Dry Zone and 72 per cent in Eastern Dry Zone. Percentage of gross rain fed area in northern dry zone is 57 per cent while 55 per cent in Southern Dry Zone. Cropping intensity ranges from 108 to 130 per cent.

Soils of in rain fed areas are mainly of two types; viz., vertisols in North Karnataka and alfisols in South Karnataka. The characteristics of these two soils types vary in terms of water holding capacity, nutrient status and infiltration rate. Besides, the alfisols have the soil crusting and severe weed menace, whereas, in vertisols erosion is a severe problem due to poor percolation of water. The production management in these two types of soils needs to be managed systematically to achieve higher productivity. The sub-division and fragmentation of agriculture land have resulted in creation of a large number of small and marginal farm making farming economically unviable. Thus resulting into migration of rural population to urban areas and the problem is further aggravated due to shortage of labour for timely agricultural operations, particularly during peak season.

The productivity levels of different crops in rain fed areas are very low and there is an urgent need to provide thrust on improving the productivity, enhancing the income levels of farmers and agricultural laborers, besides, conserving the precious natural resources such as soil and water. While the farmers in the irrigation command area are benefitted by public source of irrigation and have received fivefold additional benefits through subsidies, inputs and credit while the dry land farmers are deprived of these benefits.

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Major constraints in rain fed farming

- Erratic rainfall
- Surface run-off of rainwater
- Depletion of groundwater resources
- Poor soil fertility management practices
- Mono-cropping
- Increased cost of cultivation
- Increased labour cost
- Poor farm mechanization
- Poor extension support and investment
- Natural calamities and price risk
- Declining net farm income

Presently climate change phenomenon becoming more visible either, in the form of longer dry spells or more torrential rainy days, leading to disastrous droughts as floods. Therefore, to overcome these challenges, the Government of Karnataka announced a comprehensive policy namely Rain fed Farming Policy 2015. The policy aims to converge various policy options and achieve higher productivity, increased income and improved livelihood securities for rural population dependent on rain fed farming. Overall objective of the policy is to improve rain fed agriculture scenario in the state by climate resilient agriculture, effective utilization of rain water, strengthening farm production and post-harvest handling and improved productivity, income and livelihood options through alternative land use systems and better employment opportunities.

The policy also a besides laying aims at sustainable development of agriculture and provide nutritional strength lay thrust on promoting dry land horticulture in a big way. The financial source will be through pooling of resources under various central and state sector schemes, credit and also farmers contribution.

An ambitious programme called Krishi Bhagya Scheme (KBS) was being launched under the Rainfed Farming Policy during 2014-15 to focus on dry-land areas of the states. Karnataka long history of efforts to develop rain fed farming in a sustainable way. It has developed institutional as well as technological mechanisms to face the challenges of natural endowments. Research efforts have been made since long back Bellary district (1933) during when dry land research stations were set up in Vijayapur and Hagari. Several new schemes and programmes have been also introduced in the post-independence period. Based on experiences of these programmes, the Government of Karnataka made an attempt to tackle the issues in dry farming and in a comprehensive manner through KBS, with the specific.

Objective to study the physical and financial progress of krishi bhagya scheme in Karnataka State.

Material and Methods

The KBS was introduced in Karnataka in the year 2014-15 which was purposively selected for its detailed study.

The tabular presentation technique (percentages, means, and ratios) was used analyse Data regarding number of beneficiaries involved in the scheme, financial and physical progress were analysed through percentage. Both primary and secondary data were collected in order to evaluate various objectives of the study for the year 2014-15 through pre structure tests, well developed schedule.

Primary data

Primary field data were collected through pre tested well structure from 120 sample farmer- respondents chosen randomly from 10 selected taluks at the rate of 12 farmers from each taluk of districts. Soil and water conservation technologies, cropping pattern adopted and constraints faced by the beneficiaries during project execution. The study was undertaken in five districts of northern Karnataka namely - Bagalkote, Belagavi, Dharwad, Gadag, and Vijaypur, under the jurisdiction of UAS, Dharwad.

Secondary data

Secondary data were collected from the Departments of Agriculture and District at a glance from other published sources for analysis of physical and financial progress of the scheme.

Results and Discussion

Social category of the respondents is presented in Table 1. A large majority of beneficiaries belonged to higher social category General Merit (GM) (65%). About 21 per cent of family belonged to Schedule Caste and Schedule Tribes. 13 per cent belonged to Other Backward classes (OBC). This data reveals predominance of higher social classes in garnering benefits of Governments schemes.

Table 2 shows occupational pattern of respondents. As can be seen from this table about 70 per cent beneficiaries were practicing agriculture. About 14 per cent practiced business. Dairy was another occupation practiced by eight per cent of the respondents. About eight per cent respondents pursued private jobs. The percentage of respondents having Government jobs was less than one.

Table 3 depicts land holding status of farmer - respondents which included rainfed and irrigated. The average land holding of the farmers was about 4.29 ha and of this about 78 per cent was under rainfed while remaining was irrigated.

Krishi Bhagya Scheme has been implemented in Karnataka since 2014-15. Table 4 depicts five different components of KBS namely, farm pond, polythene lining sheets, field bunds, diesel pump sets and micro irrigation sets which are considered for analysis of progress of the scheme in the study area.

During three years period from 2014-15 to 2015-16 a total of 98,868 farm ponds have been constructed in the state (Table 4). In which about 43 per cent were constructed during 2014-15 and 43 per cent 2015-16 and remaining 14 per cent during 2016-17. A total of 40,232 polythene lining units have been distributed during three years period in which about 50 per cent were distributed during 2014-15. 56,418 field bunds works have been taken up during the period in which 44 per cent belonged to first year and 50 per cent belonged to second year and the remaining 6 per cent to the third year. A total of 33,709 diesel pump sets units have been distributed to the beneficiaries. About 41 per cent were distributed in the first year followed by 44 per cent in the second year and remaining 14 per cent during three years. Micro irrigation units numbering 45,413 were given to the beneficiaries during three year period. In this 44 per cent units were distributed during first year 45 per cent second year and the remaining 11 per cent during third year. It can be seen from the table that those farmers who constructed

farm ponds did not adopt all the schemes. It can also be informed that most of the components have been implemented in the first two years.

Table 5 depicts state level financial progress of KBS in the three year period. Various levels of amount expended on five components of the scheme in the state. About Rs. 32,698 lakhs have been spent on construction of farm ponds during the three years period. The year wise share of expenditures was about 43 per cent (2014-15), about 33 per cent (2015-16) and the remaining 25 per cent (2016-17). Rs.9,996 lakhs were spent for polythene lining during the three years period, which was distributed year wise 2014-15 (53.3%), 2015-16 (34.22%) and 2016-17 (15.42%). Money spent on construction of field bunds amounted to Rs.3,858 lakhs during the period. Of which amount about 46 per cent was spent during 2014-15 followed by 37.41 per cent during 2015-16, 16.45 per cent during 2016-17. During period an amount of Rs.6,046 lakhs was spent on distribution of diesel pump sets in which about 45 per cent was spent during 2014-15 and about 40 per cent during 2015-16 while the remaining 15 per cent during 2016-17.

An amount Rs.7,792 lakh was invested in micro irrigation sets during three year period. Of this about 52 per cent was spent during 2014-15 followed by 37.41 per cent during 2015-16 and the remaining 10.66 per cent during 2016-17. In terms of financial progress the construction farm ponds took away a major share in the total amount spent for KBS in the state.

An analysis of progress in various components of the schemes in the study area has been carried out and compared among districts and with the state level data (Table 6).

In the case of farm pond construction, of the total of 98,868 in the state 33.6 per cent were constructed in the study area. Within the study area 32,682 farm ponds have been constructed in which the share of Vijayapur district was highest (9.61%) followed by Bagalkote (8.95%), Belagavi (6.57%), Gadag (5.11%) and Dharwad (3.37%) districts respectively. The share of study area in the polythene lining units distributed in the state was about (21%) of the total 8,402 polythene lining units. The share of Belagavi district was highest at 10.34 per cent followed by Bagalakote (5.09%) and Vijayapur (4.75%). The Polythene lining units were not popular among beneficiaries in Dharwad and Gadag districts. As the per centage share of these two districts together was very less at 0.89 per cent with respect to field bunds constructions. Of the total state field bund units (56,418), 44.27 per cent were in the study area (24.97%). Within study area the percentage for field bund construction was highest in Vijayapur district (15.86%) followed by Belagavi district (10.63%). The remaining districts had moderate share at 6.78 per cent (Bagalkote), 5.91 per cent (Dharwad) and 5.09 per cent (Gadag).

About 28 per cent of the total micro irrigation units distributed at the state level (56518) were found in the study area. A total 16,055 number of units of micro irrigation were distributed in the study area. In this the share of Belagavi district was highest at 8.18 per cent followed by Bagalkote (7.05%) Vijayapur (5.39%) Gadag (4.98%). The lowest percentage of micro irrigation units was in Dharwad

district (2.81%). While a total of 33,709 diesel pump sets were distributed among beneficiaries in the state 27.46 per cent was share of the study area. Of the total of 9,258 diesel pump set units about 11 per cent were distributed among the beneficiaries in Belagavi district followed by Vijayapur district (7.30%), Gadag district (4.90%). The share of Bagalkote and Dharwad districts was on low at 2.55 per cent and 1.95% per cent, respectively.

An overall picture of distribution of benefits of scheme in the study area showed that the share of study area in the state was fairly satisfactory. Belagavi district received greater share of benefits within the study area. Progress in Belagavi, Vijayapur and Bagalkote districts was found to be much better compared to Dharwad and Gadag districts.

As shown in Table 7, an amount of about Rs. 32,968 lakhs was spent on construction of farm ponds in the state, in which the share of study area was about 37 per cent. Of the total amount spent (Rs. 12,071 lakhs) on construction of farm pond in the study area, share of Vijayapur district was highest (9.73%). The share of Gadag district stood at 8.23 per cent followed by Bagalkote (7.67%), Dharwad (5.71%) and Belagavi (5.19%) districts.

In the case of polythene lining units an amount of Rs. 9,996 lakhs was spent in the state in which share of the study area was 28.76 per cent. In the study area an amount of Rs. 2,875 lakhs was spent. The percentage share in the expenses was highest in Belgavi district followed by Vijayapur (6.89%) and Bagalkote (6.18%). The share of Dharwad and Gadag districts in the expenditure on polythene lining was very meager at (0.7%) and (0.2%) respectively. An amount Rs.3858 lakhs was spent on construction of farm pond in the state during three years period. Of this, major position (45%) was shared by five districts in the study area. Of Rs. 1,739 lakhs spent on construction of field bunds 20 per cent was the share of Vijayapur district. The shares of remaining districts were 9.19 per cent (Bagalkote), 9.08 per cent (Belagavi), 3.45 per cent (Dharwad) and 3.32 per cent (Gadag) in the declining order. With respect micro irrigation units an amount of Rs. 7,792 lakhs was spent during the period in the state. The share of study area in the total was 26.40 per cent. In the study area an amount of Rs. 2,057 lakhs was spent for promotion of micro irrigation. Among five districts Belagavi took a greater share at 8.89 per cent followed by Bagalkote (7.52%) Gadag (4.58%). The share of Dharwad district was the lowest (1.69%).

Total expenditure on diesel pump set units in the state during the study period was Rs.6,046 lakhs. In this, share of five districts was 22.09 per cent. Of about Rs.1,336 lakhs spent in the study area Belagavi district received the highest share at 12.09 per cent. The share of remaining districts was not very encouraging. It was 3.25 per cent for Gadag, 2.9 per cent for Vijayapur, 2.38 per cent for Balakote district. The share of Dharwad district was lowest at 1.42 per cent.

Table 1: Socio-Economic status of Sample farmers N =120

Sl. No	Category	Number	Percentage
1	GM	79	65.33
2	OBC	16	13.33
3	SC/ST	25	20.83
4	Total	120	100.00

Table 2: Occupational pattern of farmer- respondents in the study area

Sl No	Occupation	Number	Percentage
1	Agriculture	83	69.17
2	Dairy	10	8.33
3	Business	17	14.16
4	Private job	09	7.5
5	Government job	01	0.83
6	Total	120	100.00

Table 3: Land holdings of farmer- respondents in the study area

Sl No	Land Holdings	Area (ha)	Percentage
1	Irrigated	0.95	22.19
2	Rain fed	3.34	77.81
3	Total	4.29	100.00

Table 4: Component wise physical progress of Krishi Bhagya Scheme in Karnataka (Number)

Component	2014-15	Percentage	2015-16	Percentage	2016-17	Percentage	Total	Percentage
Farm Pond	42,191	42.67	42,837	43.33	13,840	14.00	98,868	100.00
Polythene lining sheets	19,910	49.49	14,897	37.03	54,25	13.48	40,232	100.00
Field Bunds	24,877	44.09	28,283	50.13	3,258	5.77	56,418	100.00
Diesel Pumpsets	13,916	41.28	14,976	44.43	4,817	14.29	33,709	100.00
Micro Irrigation sets	20,126	44.32	20,435	45.00	4,852	10.68	45,413	100.00

Table 5: Component wise financial progress of Krishi Bhagya Scheme in Karnataka (Amt. Rs. in Lakh)

Component	2014-15	Percentage	2015-16	Percentage	2016-17	Percentage	Total	Percentage
Farm Pond	14,080.3	42.71	10,738.1	32.57	8,150.2	24.72	32,968.6	100.00
Polythene lining sheets	5,033.5	50.36	3,420.8	34.22	1,541.6	15.42	9,995.9	100.00
Field Bunds	1,780.2	46.14	1,443.4	37.41	634.7	16.45	3,858.3	100.00
Diesel Pump sets	2,704.3	44.73	2,414	39.93	927.4	15.34	6,045.7	100.00
Micro Irrigation Sets	4,046.8	51.94	2,914.6	37.41	830.6	10.66	7,792	100.00

Table 6: Physical progress of Krishi Bhagya Scheme in the study area (2014-15 to 2016-17) (Number)

District	Farm Pond	Percent-age	Polythene Lining	Percent-age	Field Bunds	Percent-age	Micro-Irrigation	Percent-age	Diesel Pumsets	Percent-age
Bagalkote	8,850	8.95	2,046	5.09	3,824	6.78	3,983	7.05	858	2.55
Belagavi	6,499	6.57	4,162	10.34	5,995	10.63	4,623	8.18	3,630	10.77
Dharwad	3,334	3.37	3	0.01	3,334	5.91	1,590	2.81	658	1.95
Gadag	5,049	5.11	354	0.88	2,871	5.09	2,812	4.98	1,651	4.90
Vijayapur	8,950	9.05	1,837	4.57	8,950	15.86	3,047	5.39	2,461	7.30
District Total	3,2682	33.06	8,402	20.88	24,974	44.27	16,055	28.41	9,258	27.46
State Total	98,868	100.00	40,232	100.00	56,418	100.00	56,518	100.00	33,709	100.00

Table 7: Financial progress Krishi Bhagya Scheme in the study area (2014-15 to 2016-17) (Rs. in Lakh)

District	Farm Pond	Percent-age	Polythene Lining	Percent-age	Field Bunds	Percent-age	Micro-Irrigation	Percent-age	Diesel Pump	Percent-age
Bagalkote	2,527.4	7.67	618	6.18	354.7	9.19	586	7.52	143.8	2.38
Belagavi	1,711.9	5.19	1,496.6	14.97	350.4	9.08	692.5	8.89	731.1	12.09
Dharwad	1,881.1	5.71	1.8	0.02	133.3	3.45	131.3	1.69	85.7	1.42
Gadag	2,742.4	8.32	69.9	0.70	128.2	3.32	356.8	4.58	196.5	3.25
Vijayapura	3,208.1	9.73	689	6.89	772.4	20.02	290.3	3.73	178.5	2.95
District Total	12,070.9	36.61	2,875.3	28.76	1,739	45.07	2056.9	26.40	1,335.6	22.09
State Total	32,968.7	100.00	9,995.9	100.00	3,858.3	100.00	7792	100.00	6,045.7	100.00

Conclusion

It was obtained that those farmers who constructed farm ponds did not adopt all the components of scheme. It can also be inferred that most of the components have been implemented in the first two years. Need for promoting use of other components of the scheme for holistic effects of the scheme in achieving real objective of improving farm incomes and livelihoods of farmers. The fact that about one lakh farm ponds have been constructed within a span of

three years is a commendable. Since the scheme is demand driven due to its popularity the state Government has made adequate financial resources available. Performance of Belagavi, Vijayapur and Bagalkote districts was found to be much better compared to Dharwad and Gadag. An overall picture of distribution of benefits of the scheme in the study area shows that share of the study area in the state was fairly satisfactory. In the overall expenditure under the scheme during the study period performance of study area

comprising of five districts appears fairly satisfactory. With regard to performance of districts within the study area, Belagavi, Vijayapur and Bagalkote have had larger share in expenditures. The share of Dharwad and Gadag districts appeared poor. Thus, there is a need to focus more on these districts as these are the districts which are predominantly rain fed.

References

1. Anonymous. Agriculture Scenario in India. Planning Commission Report 2000-01. Government of India; c2001. p. 98-102.
2. Anonymous. Evaluation of centrally sponsored scheme on micro-irrigation conducted by NABARD Consultancy Services Private Limited (NABCONS), Mumbai; c2009. p. 1-16.
3. Anonymous. Status report on a study to understand the efficacy of the Ganga Kalyana Yojana in Heggadavenkote and Nanjangud Taluks. Report submitted to D. Devraj Urs Backward Class Development Corporation, Bangalore by Vivekananda Institute for Leadership Development, Bangalore; c2010. p. 30-44.
4. Anonymous. Krishi Bhagya Progress Report 2013-14, Department of Agriculture, Government of Karnataka, Bangalore; c2014. p. 2-16.
5. Anonymous; District at a Glance – Bagalkote district 2015-16. Department of Economics and Statistics, Government of Karnataka, Bangalore; c2016. p. 25-34.
6. Anonymous. District at a Glance – Belagavi district 2015-16. Department of Economics and Statistics, Government of Karnataka, Bangalore; c2016. p. 26-38.
7. Anonymous. District at a Glance – Dharwad district 2015-16. Department of Economics and Statistics, Government of Karnataka, Bangalore; c2016. p. 28-40.
8. Anonymous. District at a Glance – Gadag district 2015-16. Department of Economics and Statistics, Government of Karnataka, Bangalore; c2016. p. 28-54.
9. Anonymous. District at a Glance – Vijayapur district 2015-16. Department of Economics and Statistics, Government of Karnataka, Bangalore; c2016. p. 26-38.
10. Arvindakumar N. Economic evaluation of micro-irrigation programme in Vijayapura district. Karnataka. J Agric. Sci. 2013;28(3):373-376.
11. Cetin B, Ozer H, Kuscu H. Economics of drip irrigation for apple (*Malus domestica*) orchards in Turkey, New Zealand. J Crop and Hort. Sci. 2004;32(4):349-354.
12. Chambers R, Ghildyal BP. Agricultural research for resource-poor farmers; the farmer-first-and-last model. Agril. Admin. 1985;20: 1-30.
13. Jainapur RD, Poddar RS, Kunnal LB, Hugar LB, Bhat ARS. Performance evaluation of minor lift irrigation schemes in Northern Karnataka. Kar. J Agric. Sci. 2015;28(4):539-541.
14. Jalajakshi CK, Jagadish N. Economics of Krishik Bandhu Drip Irrigation: An empirical analysis. Agric. Econ. Res. Rev. 2009;22:161-164.
15. Kang'au SN, Home PG, Gathenya JM. Evaluation of the performance of smallholder pumped irrigation systems, in arid and semi-arid areas of Kenya. CIGR J. 2012;13(4):601-617.
16. Kuscu H, Eren FB, Demir AO. Performance assessment for irrigation water management: A case study in the Karacabey irrigation scheme in Turkey. African J Agric. Res. 2009;4(2):124-132.
17. Laxmi K. Socio-economic performance of Ganga Kalyan Yojana in Karnataka with special reference to Vijayapura district. M.Sc. (Agri.) Thesis, Univ. Agric. Sci., Dharwad (India); c2015.
18. Lokesh H. Investment in drip irrigation: An analysis of its impact in coconut plantations. M.Sc. (Agri.) Thesis, Univ. Agric. Sci., Dharwad (India); c1996.
19. Namara RE, Upadhyay B, Nagar RK. Adoption and impacts of micro irrigation technologies empirical results from selected localities of Maharashtra and Gujarat states of India. Research Report 93. International Water Management Institute, Colombo, Sri Lanka; c2005. p. 51.
20. Narayanamoorthy A. Averting water crisis by drip method of irrigation: A study of two water-intensive crops, Indian J Agric. Econ. 2003;58(3):427-437.
21. Narayanamoorthy A. Drip irrigation in India: Can it solve water scarcity? Water Policy. 2004a;6(2):117-130.
22. Narayanamoorthy A. Impact assessment of drip irrigation in India: The case of sugarcane in Maharashtra. Development Policy Rev. 2004b;22(4):443-462.
23. Navaneeth BS, Poddar RS, Kunnal LB, Hugar LB, Biradar DP. Performance of minor irrigation in Krishna basin of Karnataka - An economic analysis in Karnataka. Karnataka J Agric. Sci. 2008;21:532-534.
24. Poddar RS, Kanagali C, Kiresur VR, Hunshal CS, Teggi MY. Ganga Kalyan irrigation scheme for welfare of disadvantaged farmers of rural Karnataka. Proceedings of South Asian Conference on Water in Agriculture: Management options for increasing crop productivity per drop of water, 15-17 November, 2007, Indira Gandhi Krishi Vishvavidyala, Raipur, Chhattisgarh; c2007. p. 246.
25. Prasad P, Mishra V, Sohoni M. Sector reform impact on rural drinking water schemes – The case of Raigad district in Maharashtra. Econ. Pol. Weekly. 2014;49(19):58-67.
26. Sakellariou MM, Kalfountzos D, Vyrlas P. Water saving and yield increase of sugar beet with sub-surface drip irrigation. Global Nest: The Int. J Agric. 2010;4:85-91.
27. Suresh Kumar D, Palanisami K. Impact of drip irrigation on farming system: Evidence from southern India. Agric. Econ. Res. Rev. 2010;23:265-273.
28. Şener M, Yüksel AN, Konukcu F. Evaluation of Hayrabolu irrigation scheme in Turkey using comparative performance indicators Tekirdağ Ziraat Fakültesi Dergisi Şenerve ark., J Tekirdag Agric. Faculty, Senerve Ark. 2007;4(1):1-12.
29. Singh HP, Sharma MR, Quamrul Hassan, Naved Ahsan. Performance evaluation of irrigation projects - A case study of lift irrigation scheme, Sirsa Manjholi in Solan area of Shivalik Himalayas. Asian J of Adv. Basic Sci. 2013;1(1):79-86.
30. <http://raitamitra.kar.nic.in>
31. <http://agmarket.gov.in>