

# EXECUTIVE SUMMARY

## Background

Karnataka's livestock population was 27.7 million during 2012 census, which increased to 29 million during 2019. Karnataka stands 11<sup>th</sup> position, contributing 4.2 per cent, 5.8 per cent and 4.5 per cent of milk, egg and meat to nation's milk, egg and meat production, respectively. The Indian Council of Medical Research (ICMR) has recently recommended a requirement of 11 kg of meat per person/year, but availability is only around 5 kg/person/year. The importance of livestock goes beyond its food production. Lack of access to markets may act as a disincentive to farmers to adopt improved technologies and quality inputs. Other major challenges faced by the sector are inadequate availability of credit and feed/fodder. To address these issues, Government of Karnataka (GoK) introduced 'Pashu Bhagya' scheme during 2015-16 through the Department of Animal Husbandry and Veterinary Services (Dept. of AH&VS) with the following specific objectives: (i) to increase income from livestock activities through production and productivity enhancement and employment creation. (ii) to assist marginal and small farmers, agricultural labours, widows, destitute & devadasi women for setting up of Dairy, Sheep & Goat or Piggery & Poultry units, aiming at livelihood security (iii) to promote and enhance the nutritional status of the beneficiaries.

## Specific objectives of the study

1. To review the modalities of the scheme implementation as per the guidelines – procedures, process, implementation, monitoring and way of selection of beneficiaries.
2. To estimate the impact of Pashu Bhagya scheme on livestock production and productivity, employment generation, and household income among various beneficiaries
3. To determine the impact of scheme interventions on access to food, education, health, asset creation among beneficiaries (poor and needy sections of the rural society).
4. To examine the different marketing channels and trading of livestock, its product/by-products, and movement in the study area

5. To measure the perception of the various stakeholders about the scheme plan and process, quality, impact, subsidy distribution, repayment, technical support, and knowledge building.
6. To analyze the gainful impact of capacity building activities for adoption and sustenance

## **Data and methodology**

This multi-dimensional impact assessment study has considered evaluation of typological, spatio-temporal, social, institutional and economic aspects, due to adoption of scheme benefits towards meeting the objectives of the scheme. A multi-stage, geographically-stratified random sampling with cluster features was adopted. Ten districts representing 10 agro-climatic zones were selected for the study. Further talukas and Gram Panchayats (GPs) have been classified into high, moderate and low distribution of beneficiaries. In each taluk 5 to 6 GPs selected for identification of beneficiaries. Finally, 1480 beneficiaries and 128 non-beneficiaries have been selected for estimating the impact of Pashu Bhagya scheme. Selection of beneficiaries and non-beneficiaries are made from the same location resulted in capturing the real impact. Further in each sample district, data has been collected using 4 FGDs, one each from cow/buffalo, sheep/goat, poultry, and piggery. Furthermore, data from all the stakeholders involved in the program implementation was collected.

Primary data was analyzed using descriptive statistics like mean, range, percentage and ranking. Impact of Pashu Bhagya has been estimated using before and after receipt of benefit and with and without benefit situation for the evaluation period, 2015-16 to 2018-19. In case of benefits received in the beginning year (2015-16), information collected from 2014-15 as well to estimate the impact using before and after situation.

The important variables evaluated are changes in livestock production, productivity, income, employment, reduction in chemical fertilizer use due to compost availability from livestock, cropping pattern in general and specifically fodder, crop production and productivity, nutritional support, asset creation, reduction in labour migration, impact of training, marketing system among various social and farming communities. In addition, analysis of SWOT and sustainable livelihood framework was also carried out.

## Findings of the study

**Livestock population, production and growth rate:** As per the 20<sup>th</sup> livestock census (2019), Karnataka has nearly 11.5 million cows and buffalo, 17.2 million sheep/goats, 0.32 million pigs and 59.6 million poultry. Comparing 2011-12 with 2019-20 indicated an increase in milk production in the state by 165.7 per cent, egg production by 192.84 per cent and meat production by 218.44 per cent. Further, annual compound growth rate (2011-12 to 2019-20) in case of milk production was 5.68 per cent, 10.19 per cent for egg production and 8.60 per cent for meat production.

**Process and implementation of Pashu Bhagya scheme:** The scheme has been implemented under the guidelines of Central Schemes viz. Dairy Entrepreneurship Development Programme (DEDP) and National Livestock Mission (NLM) and also based on the Proceedings of the State Level Sanctioning and Monitoring Committee (SLSMC) headed by the Secretary to the Government for Animal Husbandry Department.

During 2015-16, subsidy of 33 per cent for SC/ST and 25 per cent for others categories was provided under the scheme. Further during 2019-2020 subsidy for SC/ST individuals has been increased to 90 per cent and 50 per cent for other categories. The upper limit is set per family or unit (2 cows/ 10+1 sheep/goat/ 3+1 piggery/200/500 poultry). The maximum cost per unit was Rs. 1.2 lakh for cow, Rs. 0.67 lakh for sheep/goat, Rs. 0.9 lakh for piggery and Rs. 0.85 lakh/1.1 lakh for poultry.

## Performance of Pashu Bhagya scheme

**Year wise progress:** Highest achievement to target has been realized under cows and buffaloes (125% achievement), followed by sheep/goats (95%), piggery (89%) and poultry (98%). An amount of Rs. 127.5 crore has been released against the allocated sum of Rs. 137 crores. Nearly Rs. 124 crores have been utilized under the scheme during 2015-16 to 2018-19.

**Demographic profile:** Sample beneficiaries consists of general (79%), SC (12.6%) and ST (7.5%). Majority of the farm households were small farmers (53.9%), followed by landless (18.2%), marginal farmers (13.0%), medium farmers (12%), widows and distressed women (2.8%) and large farmer (0.2%). Average family size of beneficiaries was 2.7 and

3.2 in non-beneficiaries. Further, it has been found that most beneficiaries were literates (86.7%). Major primary occupation among beneficiaries is on-farm activity (agriculture: 93.2%) and the rest depend on off-farm activities.

**Awareness of Pashu Bhagya scheme:** Study reveals that, major and primary sources of information about Pashu Bhagya scheme is Government Departments (26.1%) followed by neighboring farmer (23.6%) and Gram Panchayaths (17.6%). Further, out of all the beneficiaries, 23.8 per cent were aware of selection procedure under the scheme and the major reason for adoption of livestock is availability of subsidy (31.1%).

**Investment and subsidy disbursement:** Majority of the sample beneficiaries (81.7%) were aware about details of subsidy and loan pattern. Nearly 35.8 per cent of beneficiaries have reported that subsidies were availed within 3 to 6 months of application and subsidy amount was credited directly to their Bank account (94.4%). Results showed highest repayment for the loan was made by piggery followed by cow/buffalo, sheep/goat and poultry beneficiaries.

**Status of livestock unit:** Around 88 per cent of cattle had UID numbers intact to their body, while only 48 per cent in the case of sheep/goat, 45 per cent in piggery and 21 per cent in poultry. Insurance coverage was found to be highest in the case of cow/buffaloes (36.2%), followed by sheep/goat (31.1%), piggery (24.5%) and poultry beneficiaries (23.1%).

**Post-implementation services:** Majority of the piggery beneficiaries (90.9%) expressed that they have received maximum services, followed by cow/buffaloes (76%), poultry (76.3%) and sheep/goats (76.3%). The post-implementation services were delivered within time span of 15 days to 1 month (80.2% of beneficiaries) by the department. It is note that beneficiaries have a very good access (90.1% of beneficiaries) to veterinary hospital services.

**Access to fodder and market:** Findings revealed moderate access to fodder to majority of the beneficiaries (79.8%). Highest sale of cow/buffalo taken place during summer due to maintenance and fodder scarcity. Whereas, sale of poultry depends on demand in the market and pig is usually sold during kharif season. Selling and buying of pig usually happens in the markets outside the village, while marketing of livestock products takes place within the village through traders.

## **Impact of Pashu Bhagya scheme**

### **Production, productivity, consumption and sale of main and by-product**

**Cow/buffalo:** After adoption of the scheme, animal population has increased in every farm household, resulted in increased average production of milk from 6.13 to 18.59 lt/day, average sale from 5.42 to 17.4 lt/day and productivity by 15.91 per cent. This has resulted in increased milk consumption among the beneficiary household from 0.71 to 1.71 lt/day.

FYM production has increased from 3.3 to 15.42 ton/year/household along with its sale from 0.95 to 4.15 ton/year/household. On an average, every farm household in the study area has sold an average of 2 ton every year at an average price of Rs. 1500/ton. It is also found that, production of surplus FYM has triggered its utilization in their own farm land.

**Sheep/goat:** Scheme adoption has increased the average number of animals in every household from 1.61 to 9.94, meat production from 43.27 to 287.21 kgs/year and sales from 13.60 to 187.35 kgs/year. The average productivity has increased by 7.48 per cent and meat consumption by 34.12 per cent. Increase in number of sheep/goat population among the household also increased the manure production and its utilization.

**Poultry:** As a result of adoption of Pashu Bhagya scheme, the bird population among the households has increased from an average of 2.26 per household to 140, poultry meat production from 5.60 kgs for every 45 days to 362.21 kgs and sale from 2.80 kgs for every 45 days to 358.70 kgs. The average productivity after adoption has increased by 4 per cent and meat consumption increased from 2.80 to 3.5 kg/45 days. Similarly, egg production has increased from 75.33 to 563.3 eggs/45 days, sales from 28.30 eggs to 504.10 eggs/45 days and productivity by 17.24 per cent. The egg consumption among the beneficiary households has increased from 47 eggs to 58.90 eggs /45 days. While the average egg consumed by non-beneficiary households is 30.8/ 45 days.

**Piggery:** It has been found that the average number of pigs per households has increased from 0.89 to 29.22, pork production from 72 to 2635 kg/year/household, sale from 56.8 to 2613 kg/year/household and productivity by 12.39 per cent.

It has been also found that, the average pork consumption among the beneficiary households has increased from 15.1 to 22.5 kg/year/household. While the average meat consumed by non-beneficiary households is 19.5 kg/year/household.

**Change in chemical fertilizer usage:** Results indicated that, manure from the livestock is being utilized in the agricultural land among the beneficiaries, which has resulted in reduction in usage of chemical fertilizers after adoption of the scheme and beneficiaries are using less chemical fertilizers when compared to non-beneficiaries.

**Production of agriculture crops:** After adoption of scheme, productivity of Bengal gram has increased by 41.1 per cent (from 9.5 to 13.4 qt/acre), groundnut by 23.5 per cent (from 8.3 qt/acre to 10.5 qt/acre), paddy by 14.1 per cent (from 35 qt/acre to 40 qt/acre). Productivity of agriculture and horticulture crops among the beneficiaries has found to be higher as compared with the non-beneficiaries in majority of the cases.

**Employment:** The employment among the beneficiary farmers has significantly increased after the adoption of the Pashu Bhagya scheme. The employment generation by the non-beneficiaries was relatively lesser than that of the beneficiaries, mainly due to lower number of livestock units as compared to beneficiary farmers.

**Income from livestock:** Family income among the beneficiaries has increased by 28.1 per cent among the beneficiaries of cow/buffalo, 30.7 per cent among sheep/goat, 28.2 per cent among poultry and 19.3 per cent among piggery beneficiaries. Contribution of livestock income to the total income of the farmer before adoption of the scheme was found to be around 31 per cent, which increased to 36 per cent after the adoption of the scheme.

**Economic impact:** Income from cow/buffalo products (72.2% of beneficiary farmers) and sheep/goat products (55.5% of beneficiary farmers) was used for purchasing agricultural/farm equipment. Whereas, income from piggery and poultry helped them in construction of livestock sheds (piggery shed/house) and purchase of household necessary goods. Among the category of farmers, medium and large farmers opined that, income obtained from livestock was utilized for purchasing agricultural/farm equipment and crop production inputs. Among sheep/goat beneficiaries, farm households opined that, maximum (87.8%) of their income from sheep/goat is spent on agricultural/farm equipment purchase.

**Social and other impacts:** Majority of the farm households opined that, the best income generating livestock activity for their families is cow enterprise (57.7%), followed by sheep/goat (30.6%), and poultry (short-time income) and piggery (2.9%).

Outcomes of the scheme has been able to increase household food security (for 91.1% of the farm households), followed by increased networking and business activity due to adoption of livestock (90.3%), increased nutritional supplementation (89.7%) are few major reasons for adoption of the scheme.

Income from livestock adoption has supported children education to the tune of 20-50 per cent among 58.9 per cent of the farm households. It is also found that the income from livestock have influenced farmers to purchase more livestock and livestock related goods for higher income and further maintenance. While few (9.9%) have opined that the animal husbandry is beneficial in improving soil health through application of FYM.

**Migration:** Cow/buffalo adoption and farming among the beneficiaries have reduced migration to an extent of 73.8 per cent, followed by 68.3 per cent among sheep/goat, 67 per cent among piggery and 59 per cent among the poultry beneficiaries. It has been found that the landless beneficiaries are the most migrated among the beneficiary households.

**Trainings and capacity building:** Results revealed that, only 12.7 per cent of beneficiaries have attended the training. District wise analysis of participation among the beneficiaries revealed that the highest participation for training was observed in Dakshin Kannada district, while lowest was observed in Mandya. Among the beneficiaries, 70.7 per cent (133 out of 188) of cow/buffalo beneficiaries have attended the training, followed by 19.7 per cent in sheep/goat management, poultry (4.3%) and piggery (5.3%). Majority of trainings attended beneficiaries belong to Gen/OBC (77.7%) category, followed by SC and ST community.

### **Stakeholder interaction**

**Stakeholder interaction (department staff):** The breeding policy was developed for cow/buffalo. However, the same in case of poultry and piggery has to be developed. Cross-breeding is practiced in 90 per cent of sheep/goats to increase meat production and 50 per cent of cow/buffaloes to increase the quantity and quality of milk.

Selection of beneficiaries was done manually till 2018-19 and from 2019 onwards, it was based on FRUITS ID. During 2015-16, lottery system was adopted, which was headed by DC or Thasildar. During 2016-19 taluk level selection committee headed by MLA/MLC was framed.

Scheme convergence was observed with MGNREGA schemes in purchasing chaff cutter and in constructing cattle sheds. Capacity building training has been conducted by department at district level and nearly 20 to 55 percent of beneficiaries were benefitted from the training.

**Stakeholder interaction (bankers):** 60 to 80 per cent of cow/buffalo beneficiaries have found to utilize the loan effectively followed by piggery (75%), sheep/goat (45% - 66%) and it was found least in poultry (25 to 45%). Timely repayment and loan recovery was found to be effective in piggery (65 - 80%), cow/buffalo (60-75%) and Sheep/goat (35 - 50%) and poultry (25 - 45%) beneficiaries.

Suggestions from bankers include: monitoring of the fund since beginning of project, provision of mortgage for loan disbursement, selection of need-based beneficiaries, curbing defaulters and allocation of funds only after receipt of documents/bills and other necessary proofs.

**Stakeholder interaction (traders):** Due to fluctuations in the market, price of livestock products varied from 10 to 50 per cent depending on the season, demand and availability. Marketing of cow/buffalo was predominant during summer, sheep/goat during festivals and after winter, while poultry is sold all around the year and pork during monsoon. Major hurdle in marketing is (price, accessibility, market structures etc.) due to increase in transportation charges, disease threat and animal mortality during transport.

### **Salient features of FGDs**

Majority of the land area in the study region is rainfed (60%), followed by irrigated (35%), waste land (4%) and grazing land (1%). The topography is flat with undulating terrain, while hilly terrain was observed in Uttara Kannada and Dakshin Kannada districts. Around 65 per cent households are experiencing issues with respect to grazing of animals.



Primary and major sources of information on Pashu Bhagya Scheme was obtained from AH & VS department (78%), followed by neighboring farmer (20%) and mass media (TV, 2%). Majority of the farm households were aware about subsidy (65%) and loan (62%) under the scheme. Major involvement in decision making during livestock management was in the hands of male family member (58%) and female family member (55%). The number of cooperatives/ federations and financial institutes in the village were ranging from 1 to 2. Around 45 per cent families become a member of other community-based organizations. While 55 per cent reported difficulty in obtaining loan and subsidy.

Income from livestock is normally utilized for purchase of groceries (68%), school expenditure (23%) and health (9%). Adoption of scheme have reduced migration in many of the households (45%).

Department of AH & VS and KVKs are the only institutions that are involved in conducting trainings and field demonstrations. Around 25 percent of the beneficiaries attended training program under cow/buffalo, sheep/ goat (15%), poultry (5%) and piggery (10%). Major takeaways from the training and capacity building among the beneficiaries were skill development (45%) and knowledge enrichment (55%). But still majority of the farm households opined that the major issue affecting income generation from livestock is lack of market infrastructure, reduction of open grazing land and poor access to organized markets.

## **Key recommendations**

### **Programme implementation**

1. Beneficiary selection should be need based and transparent giving preference to first come first serve criteria. Pashu Bhagya scheme has to be implemented through single window approach for smooth implementation.
2. IT enabled initiatives to be followed for monitoring and tracking of livestock through geo-tagging and referencing for real-time monitoring.
3. Bank and insurance institutions to be involved from selection of beneficiary till implementation.
4. There is need for convergence of Pashu Bhagya with the programmes like Krishi Bhagya (Farm Pond), Livestock infrastructure (Cattle shed) with RKVY, Solar

- mission for poultry energy requirement, Mining area Development Fund-Only Mining area project location. MGNREGA scheme to be extended for creation of fodder plantation.
5. There is a need of breeding policy for poultry and piggery sector and fodder policy, for further development of livestock sector
  6. Concurrent monitoring and evaluation has to be done by the department (internal) as well as by third party.
  7. Livestock ambulance service needs to be started generally in all districts and Raichur, Bidar and Vijayapura district in particular. Further, Animal welfare war room which is established recently can be continued to reach out to the cattle breeders, dairy farmers, to improve the health and productivity of livestock.
  8. Developing institutional measures (agents/dealers) to regulate the unorganized markets.
  9. Unit costs should be revised on an annual basis based on changes in the market prices
  10. Insurance to be made mandate through Banks for livestock in order to minimize risk
  11. There is a requirement of shed construction for sheep/goat to ensure their safety specifically for landless, marginal, small, and medium land farmers, widows, distressed women.
  12. To improve the animal health, intensive training to be given to beneficiaries on concentrate feed, fodder, and animal care.
  13. Support services, awareness and capacity building has to be provided regularly.
  14. ICT tools to be used for disseminating the program information for wider reach
  15. Need for establishment of a dedicated institutional setup (Project staff) for effective implementation and wider coverage.
  16. Promote community participation through incentivizing the best practicing farmers.
  17. Compulsory distribution of leaflets/brochures in vernacular language to the beneficiaries on livestock management, latest technologies and best practices.
  18. Organizing training on value addition of the product, livestock management and support for branding the product (Farmer Fresh-Milk/egg/meat).
  19. Department extension staff need to undergo 'Refresher Courses and exposure visits' on topical issues on fodder production and livestock management.

### **Fodder accessibility**

1. Identification of Goshalas in 22 districts is in progress. In the remaining districts a PPP model of Goshala to be promoted.
2. There is urgent need for conserving natural pasture /Kaval/village grass lands and open fodder banks at district level (Kalyana Karnataka) for promoting fodder security.
3. Shrinking and degrading pastures coupled with severe short supply of green fodders during summer season needs to be addressed through identification of tropical savanna grassland. Special attention needs to be given for dry regions like Tumkuru, Bidar and Raichur district farmer for growing of fodder in their farmlands.
4. Capacity building programme on preparation of concentrated feed by using locally available resources to be promoted.

### **Marketing of livestock**

1. Digital marketing (App) system has been launched recently for sheep/goat through National E-Marketing limited. Similar facility to be extended for piggery and poultry.
2. Organising Pashu mela in every district annually to improve marketing channel
3. Special efforts needed for handholding existing FPOs and promoting new FPOs for livestock value chain development. Additionally, SHGs to be encouraged for promoting livestock enterprise.