

Under learning and evaluation section of PM&L, 16 external studies were undertaken based on the emerging needs during implementation of the project. The detailed list of studies and the major findings have been summarised in the table below:

Sr. No.	Intervention/Activity	Consultant	Major Findings
1	Methane Emission Measurement Study (NR)	NDRI, Karnal	Balanced feeding has an effect on enteric methane emission by maintaining an appropriate rumen environment suitable for microbial proliferation, which is required for improving feed efficiency and decreasing methane emission per unit of milk yield.
2	Methane Emission Measurement Study (WR)	AAU, Anand	
3	Special studies on strengthening women empowerment	IRMA, Anand	The programme village women were found to be 5 per cent more likely to participate in village level infrastructure discussions and 6 per cent more likely to demand fair wages for public works and protest misbehaviour by authorities and elected representatives.
4	RBP Impact Study (NR and WR)	NDRI, Karnal & IRMA I	North and West (NDRI) : Average milk productivity has increased by 13 per cent in cattle (in both Gujarat & Punjab) through RBP, while productivity improvement in buffaloes due to RBP was 5.5 per cent & 17 per cent respectively in Gujarat and Punjab states. There was decrease in cost of feeding the cows by 18-19 per cent in both the states while it was 2.5-2.6 per cent in case of buffaloes in both the states. The estimates of incremental gains to dairy farmers due to enhanced milk production and decreased feed cost worked out to be between ₹20-40 per day per animal in most cases.
5			South (IRMA): The RBP households produced about 470 ml more milk per animal per day on an average as compared to the non-RBP households. One out of every three RBP animal required one less insemination for conception. The feeding cost of per animal per day on an average declined by about ₹6 in the state of Karnataka whereas it increased by about ₹12 in the state of Kerala. At the aggregate level, the feeding cost increased by about ₹3 per animal per day.
6	Contribution of NDP I in inclusion, equity and income of Dairy farmers	IEG, New Delhi	In case of cow, an average dairy farmer's milk production per day in intervention villages was 14.5 litres vis-à-vis 11.7 litres per day in control villages. Similarly, the average buffalo milk production per dairy farmer in intervention and control villages was 9.4 and 6.0 litres per day respectively. The gross receipt from cow milk production in intervention and control villages was found to be ₹393 and ₹310 per day respectively. The gross receipt from buffalo milk in intervention and control villages was ₹276 and ₹198 per day respectively.
7	Sustainability of Dairy Cooperative Societies organised under NDP I	IRMA	The composite index was developed that consists of (i) Physical technical support (supply chain), (ii) DCS ability (finance & payment), (iii) Governance & management, (iv) Allied support (state/central govt.) and (v) Common support (amenities). When the index value is found very high, it tends to lead to a counter-productive effect.
8	Understanding the existing knowledge/skill level and attitude/perception of rural youth towards dairying in NDP I villages	IEG, New Delhi	Basic awareness regarding dairy-farming was found to be high among young dairy farmers (67.5 per cent). Willingness to choose dairy as a career option: The willingness to engage in dairy sector is noticeable (about three times) higher among female youth (65.2 per cent) compared to male youth (23.1 per cent). Constraints in shifting to dairy, i.e. loan facility, risk-taking ability, uncertain markets, intensive labour required etc.
9	Assessment of HRD issues in the Dairy Coops	IRMA	Shortage of manpower due to stoppage of recruitment in most of the EIAs and substantial increase in milk handling. To bridge the gap, most of the sample EIAs have been employing workers and/or professionals on short-term basis, often through labour contracts.