

Strengthening Small Ruminant Based Livelihoods

A compendium of workshop proceedings



Department of Animal Husbandry, Dairying & Fisheries
Government of India

  **SOUTH ASIA**  
Pro Poor Livestock Policy Programme

June 2016



Food and Agriculture
Organization of the
United Nations

यह बकरी का जो व्यापार है -
कभी खूब घना
कभी मुट्ठी भर चना
और कभी वोह भी मना

जैनुलअब्दीन, पश्चिम बंगाल

“Yeh bakri ka jo vyaapar hain –
Kabhi khoob ghana
Kabhi mutthi bhar chanaa
Aur kabhi who bhi manaa”

This business of goats –
Sometimes it flourishes
Sometimes it yields only a handful of chickpeas
And sometimes even that is denied

Jainulabdeen, West Bengal

Strengthening Small Ruminant Based Livelihoods: A Compendium of Workshop Proceedings

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Strengthening Small Ruminant Based Livelihoods

Compendium of Proceedings of National and Regional Workshops organised by
Department of Animal Husbandry Dairying and Fisheries, Government of India and South
Asia Pro Poor Livestock Policy Programme between January 2015 and January 2016

**Department of Animal Husbandry, Dairying & Fisheries
Government of India**



SOUTH ASIA
Pro Poor Livestock Policy Programme



June 2016



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Contents

Abbreviations	i
I. Proceedings of National Workshop on Strengthening Small Ruminant Based Livelihoods, January 2015, New Delhi	1
1. Introduction	2
2. Inaugural Session	3
3. Technical Sessions	4
3.1 Session I: Small Ruminant Health and Veterinary Care: Challenges and Opportunities	4
3.2 Session II: Feed and Fodder Resources for Small Ruminants	6
3.3 Session III: Long-term Measures for Small Ruminant Livelihood Development	7
4. Recommendations	10
II. Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, May 2015, Jaipur	13
1. Introduction and Objectives	14
2. Inaugural Session	15
3. Session I: Policies and Programmes for Small Ruminants in Gujarat and Rajasthan	16
3.1 Rajasthan Presentations: Salient Points	16
3.2 Gujarat Presentations: Salient Points	18
3.3 Open House Discussions: Salient Points	19
4. Session II: Experience Sharing	19
4.1 MPoWeR (Mitigating Poverty in Western Rajasthan)	20
4.2 Urmul Khejadi Sansthan (UKS)	22
4.3 Centre for microfinance (CmF)	23
4.4 PGIVER, Jaipur, RAJUVAS	24
5. Session III: Primary stakeholder perspectives	25
5.1 <i>Pashu Sakhis</i>	25
5.2 Goat keepers	25
6. Session IV: Sub-group discussion and presentation	26
6.1 Group I: Strengthening goat-based livelihoods	26

6.2	Group II: Strengthening sheep-based livelihoods	26
6.3	Group III: Integrating primary producers with markets	26
7.	Plenary	27
7.1	Enhancing productivity	27
7.2	Livestock farmers' associations	27
7.3	Marketing, value-addition and market infrastructure	27
7.4	Financial and risk management services	28
7.5	Challenges specific to sheep-based livelihoods	28
8.	Recommendations from the workshop	28
III.	Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, July 2015, Bhubaneswar	31
1.	Introduction and Objectives	32
2.	Inaugural Session	33
3.	Session I: Small Ruminant Policy and Programmes, Challenges and Success Stories – Odisha and West Bengal	36
3.1	Odisha Directorate of AH&VS	37
3.2	West Bengal Directorate of Animal Resources and Animal Health	39
3.3	Professional Assistance for Development Action (PRADAN)	41
3.4	Unnayan	44
3.5	Regional Centre for Development Cooperation (RCDC)	45
3.6	Development Research Communication and Service Centre (DRCSC)	46
3.7	Society for People's Awareness (SPAN)	47
4.	Session II: Small Ruminant Policy and Programmes, Challenges and Success Stories – Bihar, Chhattisgarh and Jharkhand	48
4.1	Bihar Animal and Fisheries Resource Department	49
4.2	Chhattisgarh Directorate of AH&VS	51
4.3	Krishi Vigyan Kendra, Gram Nirman Mandal, Nawada, Bihar	54
4.4	Professional Assistance for Development Action (PRADAN), Gumla	54
4.5	Jharkhand Goat Trust	56
4.6	Margdarshak Seva Sansthan, Chhattisgarh	57

4.7	Gramodaya Kendra, Chhattisgarh	57
5.	Session III: Sub-group discussion and presentations	57
5.1	Group I: Disease Management	58
5.2	Group II: Fodder and Nutrition Management	58
5.3	Group III: Housing and Hygiene Requirements	59
5.4	Group IV: Conservation of Indigenous Breeds	59
5.5	Group V: Marketing of Small Ruminants; Value Addition Prospects	60
IV.	Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, August 2015, Bengaluru	61
1.	Introduction and Objectives	62
2.	Inaugural Session	62
3.	Small Ruminant Policy and Programmes – Presentations by State Animal Husbandry Departments	64
3.1	Karnataka Directorate of AH&VS	64
3.2	Andhra Pradesh Animal Husbandry Department	69
3.3	Telangana Animal Husbandry Department (TAHD) and Telangana State Sheep and Goat Development Cooperative Federation (TSSGDCF)	74
3.4	Tamil Nadu Department of Animal Husbandry, Dairying and Fisheries	78
3.5	Kerala Department of Animal Husbandry	82
4.	Presentations by Rainfed Livestock Network (RLN) on Research Findings and Good Practices in the Sector	85
4.1	Improving Animal Health Services – A Farmers' Perspective	85
4.2	Small Ruminant Markets	88
4.3	Identification, documentation and recognition of lesser known breeds	89
4.4	Biocultural protocols of livestock keeping communities	91
4.5	Promoting integrated small ruminant production for enhancement of rural livelihoods	93
4.6	Commons and livestock	95
5.	Conclusion	96
5.1	Health	96
5.2	Breed	97

5.3	Shelter	97
5.4	Feed and fodder	97
5.5	Markets	97
5.6	Financial services to livestock keepers	98
5.7	Others	98
V.	Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, September 2015, Bhopal	99
1.	Introduction and Objectives	100
2.	Inaugural Session	100
3.	Session I: Presentations from Madhya Pradesh	102
3.1	Animal Husbandry Department, Madhya Pradesh	102
3.2	Sampark Samaj Sevi Sansthan, Raipuria, MP	105
3.3	Aga Khan Rural Support Programme (India), MP	108
3.4	Goat and Sheep Farmers' Welfare Association	111
4.	Session II: Presentations from Maharashtra	113
4.1	Maharashtra State Presentations	113
4.2	Watershed Organisation Trust (WoTR) – CPR and Livestock	118
5.	Session III: Presentation from Uttar Pradesh	120
5.1	Department of Animal Husbandry, Uttar Pradesh	120
5.2	Aga Khan Foundation – <i>Pashu Sakhi</i> model	122
6.	Concluding Session	125
6.1	Preventive Veterinary Care Services	125
6.2	Fodder and Nutrition Management	126
6.3	Housing and Hygiene Requirements for Small Ruminants	126
6.4	Breeds and their Conservation	127
6.5	Marketing of Small Ruminants	127
VI.	Proceedings of National Concluding Workshop on Strengthening Small Ruminant Based Livelihoods, January 2016, New Delhi	129
1.	Summary	130

Annexures	133
Annexure 1	135
Annexure 2-A	145
Annexure 2-B	153
Annexure 2-C	163
Annexure 2-D	171
Annexure 2-E	181
Annexure 2-F	187
Annexure 3	193
Annexure 4	197
Annexure 5	199
Annexure 6	201
Annexure 7	203



Abbreviations

ABG	Activity Based Group
AFRD	Animal and Fisheries Resources Department
AH	Animal Husbandry
AH&VS	Animal Husbandry and Veterinary Services
AHD	Animal Husbandry Department
AI	Artificial Insemination
AKRSP(I)	Aga Khan Rural Support Programme (India)
APMC	Agricultural Produce Marketing Committee
AnGR	Animal Genetic Resources
ANLM	Administration and National Livestock Mission
AR&AH	Animal Resources and Animal Health
ARAVALI	Association for Rural Advancement through Voluntary Action and Local Involvement
ART	Assisted Reproductive Technology
ASCI	Agriculture Skill Council of India
ASCAD	Assistance to States for Control of Animal Diseases
BAIF	BAIF Development Research Foundation
BCP	Biocultural Community Protocols
CAGR	Compounded Annual Growth Rate
CAHW	Community Animal Health Worker
CALPI	Capitalisation of Livestock Programme Experiences India
CCAP	Climate Change Adaptation Project
CCPP	Contagious Caprine Pleuro Pneumonia
cELISA	Competitive Enzyme-Linked Immunosorbent Assay
CIRG	Central Institute for Research on Goats
CmF	Centre for microFinance
CPR	Common Property Resource
CSP	Community Service Provider
CSR	Corporate Social Responsibility
CSS	Centrally Sponsored Scheme
CSWRI	Central Sheep and Wool Research Institute
CVO	Community and Voluntary Organization
CWDB	Central Wool Development Board
DADF	Department of Animal Husbandry, Dairying and Fisheries
DFID	Department for International Development, United Kingdom
DoAH	Department of Animal Husbandry
DPIP	District Poverty Initiatives Project
DR CSC	Development Research Communication and Services Centre
DSBCS	District Sheep Breeders' Cooperative Society
ET	Enterotoxaemia
F&ARDD	Fisheries and Animal Resources Development Department

FAO	Food and Agriculture Organisation of the United Nations
FAOR	Food and Agriculture Organisation Representative
FES	Foundation for Ecological Security
FGD	Focus Group Discussion
FMD	Foot and Mouth Disease
FPO	Farmer Producer Organisation
FSSAI	Food Safety and Standards Authority of India
GAG	Goat Activity Groups
GALVmed	The Global Alliance for Livestock Veterinary Medicines
GBLDC	Goat Based Livelihood Development Committee
GDP	Gross Domestic Product
GDS	Grameen Development Services
GO	Government Organization
GoB	Government of Bihar
GoG	Government of Gujarat
GoI	Government of India
GoK	Government of Karnataka
GoMP	Government of Madhya Pradesh
GoO	Government of Odisha
GoR	Government of Rajasthan
GP	Gram Panchayat
GSDP	Gross State Domestic Product
GSFWA	Goat and Sheep Farmers' Welfare Association
HH	Household
HS	Haemorrhagic Septicaemia
IAMP	Improved Animal Management Practices
IAS	Indian Administrative Service
ICT	Information and Communication Technology
IDSRR	Integrated Development of Small Ruminants and Rabbits
IFAD	International Fund for Agricultural Development
IGMP	Improved Goat Management Practices
IIPM	Indian Institute of Planning and Management
ILRI	International Livestock Research Institute
INR	Indian Rupees
IT	Information Technology
IVRI	Indian Veterinary Research Institute
IWMP	Integrated Watershed Management Programme
JLG	Joint Liability Group
JS	Joint Secretary
KSWDC	Karnataka Sheep and Wool Development Corporation
KVK	Krishi Vigyan Kendra
LEISA	Low External Input Sustainable Agriculture
LEISAH	Low External Input Sustainable Animal Husbandry

LLWs	Lady Link Workers
LPPS	Lokhit Pashu Palak Sansthan
LSP	Livelihood Sustainability Program
MAFSU	Maharashtra Animal and Fishery Sciences University
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MKSP	Mahila Kisan Sashaktikaran Pariyojana
MoA	Ministry of Agriculture
MoEF	Ministry of Environment and Forests
MP	Madhya Pradesh
MPoWeR	Mitigating Poverty in Western Rajasthan
MSGDC	Maharashtra Sheep and Goat Development Corporation
MSS	Margdarshak Seva Sansthan
MT	Metric Tonne
NABARD	National Bank for Agriculture and Rural Development
NABCONS	NABARD Consultancy Services
NARI	Nimbkar Agricultural Research Institute
NBAGR	National Bureau of Animal Genetic Resources
NCDC	National Cooperative Development Corporation
NDDB	National Dairy Development Board
NEEDS	Network for Enterprise Enhancement & Development Support
NEFT	National Electronic Funds Transfer
NGOs	Non-governmental organizations
NLM	National Livestock Mission
NMPS	National Mission for Protein Supplementation
NREGA	National Rural Employment Guarantee Act
NRLM	National Rural Livelihoods Mission
NTFPs	Non-Timber Forest Products
OBC	Other Backward Class
OCTMP	Orissa Community Tank Management Project
OSD	Officer on Special Duty
OTELP	Orissa Tribal Empowerment & Livelihoods Programme
PAIW	Private Artificial Insemination Workers
PGIVER	Post Graduate Institute of Veterinary Education & Research
PMC	Project Management Committee
PoG	Passing on the Gift
PPR	<i>Peste des petits ruminants</i>
PPR-CP	PPR – Control Programme
PRADAN	Professional Assistance for Development Action
PRIs	Panchayati Raj Institutions
PSBCS	Primary Sheep Breeders' Cooperative Society
R & D	Research and Development
RAJUVAS	Rajasthan University of Veterinary and Animal Sciences
RCDC	Regional Centre for Development Cooperation

RKVY	Rashtriya Krishi Vikas Yojana
RLN	Rainfed Livestock Network
SAPPLPP	South Asia Pro Poor Livestock Policy Programme
SAU	State Agriculture University
SC	Scheduled Castes
SEZ	Special Economic Zone
SFDS	State Fodder Development Scheme
SHGs	Self-Help Groups
SIAM	State Institute of Agriculture Management
SMILE	Society for Management of Information, Learning and Extension
SNF	Saturated Non Fat
SPAN	Society for People's Awareness
SRTT	Sir Ratan Tata Trust
ST	Scheduled Tribes
SWIS	Sheep & Wool Improvement Scheme
TAHD	Telangana Animal Husbandry Department
TN	Tamil Nadu
TSSGDCF	Telangana State Sheep and Goat Development Cooperative Federation
TWC	Tribal Welfare Cell
UKS	Urmul Khejadi Sansthan
UN	United Nations
UNDP	United Nations Development Programme
UP	Uttar Pradesh
URMUL	Uttari Rajasthan Cooperative Milk Union Ltd.
VC	Vice-Chancellor
VOTI	Veterinary Officers' Training Institute
WB	West Bengal
WoTR	Watershed Organisation Trust

Proceedings of National Workshop on Strengthening Small Ruminant Based Livelihoods, January 2015, New Delhi



1. INTRODUCTION

A national workshop on “Strengthening Small Ruminant Based Livelihoods” was organised jointly by the South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of FAO of the UN and National Dairy Development Board (NDDB), India, and the Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture (MoA), Government of India (GoI), at New Delhi on January 16-17, 2015.

Goats and sheep, collectively referred to as small ruminants, form the backbone of rural livelihoods for resource poor families in arid and semi-arid regions of India, often providing them with much-needed cash which goes into supporting farm-based and other livelihoods. Goats, in particular, are one of the most indispensable of the poor’s livelihood assets, readily liquidated in times of need and emergencies, and thus forming a core of their livelihood and risk management strategies.

In a country with a total livestock population of 512.05 million, of which 40% are goats and sheep, the livestock sector contributed over a quarter of the total value of output in agriculture, fisheries and forestry (in 2012-13, at current prices). Notwithstanding, the significance and contribution of the sector is severely compromised on account of inadequacy of technically qualified personnel, and generally ill-equipped veterinary units around the country, especially in rural areas. At the same time, productivity and efficiency of the livestock production systems is constrained by diminishing fodder resources, agriculture-centric land use, and development policies that are non-cognizant of the agriculture-livestock-ecology interactions and interdependence.

For over a decade and more, NGOs as well as a few government/semi-government agencies have been working on developing alternative models for veterinary care service delivery in remote rural areas, as well as breed conservation and pasture land development for enhancing productivity in small ruminants; more recently, there have been efforts at collective marketing and value chain development in the sector, as well as evolving feasible and sustainable models of community-based insurance for small ruminants. It is surmised that sufficient knowledge and experience have been gained, and human resource capacities developed, for up and out- scaling these pilot interventions, in collaboration with the GoI and state animal husbandry departments. The National Livestock Mission (NLM) of the GoI provides a framework and an opportunity for supporting a multi-state Comprehensive Small Ruminant Development Programme, which could be implemented in collaboration with multiple stakeholders at the district, state and national levels.

The objective of the workshop was to facilitate multi-stakeholder interaction, arrive at a collective understanding of the issues and challenges confronting actors in the development of goat and sheep-based livelihoods, exchange experiences and good practices, and deliberate on a way forward for integration of demonstrated good practices within the functioning of the state animal husbandry departments, including agreeing on a set of strategic

National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January 2015

recommendations for development of the sheep and goat sub-sectors under the framework of the National Livestock Mission. A background paper was prepared for the workshop by SA PPLPP, and is placed at Annexure 1.

A total of 112 individuals, representing 77 organisations, participated in the workshop. The list of all participants with their contact details is placed at Annexure 2-A.

2. INAUGURAL SESSION

The inaugural session of the workshop was graced by the presence of honourable dignitaries from the DADF, Ministry of Agriculture; Chairman, National Dairy Development Board; Food and Agriculture Organization of the United Nations, India, and *Pashu Sakhis* from three districts of Rajasthan (Alwar, Dholpur) and Madhya Pradesh (Khargone), who had been trained and supported by Ibtada, PRADAN, and AKRSP (I) respectively.

In the addresses delivered by the FAOR, India (Dr Kevin Gallagher), Secretary, DADF (Mr Anup Kumar Thakur), and Chairman, NDDDB (Mr T Nanda Kumar), the following emerged as the key messages¹:

1. Poor regions and poor people in the country are the most dependent on small ruminants; it is a fact that goats and sheep have not received the policy attention they deserve, considering that they are highly valued and one of the most important livelihood assets of small and marginal farmers and landless families.
2. Models and approaches for small ruminant development are now available and need to be scaled up. The ongoing integrated pilots on goat and poultry rearing, by SA PPLPP in partnership with Aga Khan Rural Support Programme and Sampark Samaj Sevi Sansthan in Khargone and Jhabua districts in Madhya Pradesh are examples. It is evident that a link between government programmes and farmers is necessary at the field level – this maybe in the form of *Pashu Sakhis*, or NGOs or other people's institutions. While designing programmes for scaling up the demonstrated models, it is important that this link should not be ignored.
3. Various wings and departments of the government have ongoing programmes, elements of which need to be integrated for optimum benefit. SA PPLPP pilots have demonstrated that convergence between these programmes is both necessary and possible.
4. SA PPLPP pilots in Madhya Pradesh, wherein the DADF is closely associated, have demonstrated the significance of small but crucial interventions in small holder goat rearing; the learning from these pilots needs to be assimilated and replicated in other parts of the country. This workshop is a first step in the process.

¹ The video coverage of Eminent Speakers, addressing the Inaugural Session can be accessed at: http://SA_PPLPP.org/informationhub/small-ruminants/workshop-proceedings/videos-of-eminent-speakers-at-the-national-workshop

5. The full potential of the workshop must be harnessed to draw a detailed demand supply framework, especially for meat markets, so that farmers get good remuneration and goat rearing emerges as a sustainable livelihood source for poor and marginal farmers.
6. National Livestock Mission and its scope for improvement of Small Ruminant based livelihoods offers a framework and an opportunity for supporting a multi-state and integrated development programme on small ruminant-based livelihoods, to be implemented in collaboration with multiple stakeholders at the state and national levels.

The inaugural session ended with explicit recognition and appreciation of the role played by *Pashu Sakhis* in awareness generation, preventive health care including deworming and vaccination, and disease surveillance in villages, and the necessity of mainstreaming services provided by community animal health workers in rural areas in particular.

3. TECHNICAL SESSIONS

There were a total of three panels for presentations and discussions on the first day of the workshop, and these focused on the following three major themes:

- Small ruminant health and veterinary care
- Feed and fodder resources for small ruminants
- Long-term measures for strengthening small ruminant livelihoods, including breed improvement and conservation, value chain development, and community-led insurance

Copies of all the presentations are available online on the SA PPLPP website (www.sapplpp.org). A summary of the main points emerging from each session and panel is provided below.

3.1 Session I: Small Ruminant Health and Veterinary Care: Challenges and Opportunities

1. Where veterinary care services are concerned, there is a mismatch between policy and legal provisions and actual practice, with community animal health workers playing a significant role in service delivery in villages; it was suggested that initiative would need to be taken by the States and the Centre to resolve the dichotomy and put forth practical solutions for ensuring that necessary information and services were made available to small holder goat and sheep-rearing households in all locations.
2. In the context of the National Livestock Policy, it is important that the stated policy intentions are appropriately supported with programmes and directives for a way forward as far as small ruminants are concerned.
3. The need to review the regulatory framework and notifications with respect to veterinary services (viz., Indian Veterinary Council Act, 1984, and notifications pertaining to the definition of 'minor veterinary services', as issued by various state governments) was stressed upon,

particularly in light of the wide gap between requirement and availability of qualified personnel.

4. In view of the large number of vacancies in government veterinary hospitals and services (of veterinary and para-veterinary personnel in the country), their limited outreach, and their actual requirement, there is a felt need to supplement provision of extension and para-veterinary services by Community Animal Health Workers (CAHW). This would need to be accepted as a component and integrated in all future plans / programmes of state animal husbandry departments to bridge the gap between demand and availability of service providers. CAHWs are crucial to last mile service delivery.
5. It was agreed that CAHWs are to be treated as a resource and sustained in the long- term, rather than allowed to fade out after the project period. Necessary steps may be taken both at Project and the State levels to continue to nurture CAHWs, and devise appropriate mechanisms to provide them technical, training and social as well as institutional support on a sustained basis.
6. There is substantial variation in the duration, rigour and content of courses conducted by different organisations and research/ extension/ academic institutions for CAHWs around the country. Participants suggested that the DADF should contemplate standardization of curriculum (outlining the minimum requirements) and duration of training for CAHWs; training different categories of CAHWs for different purposes (e.g., for sheep, goat, AI, etc.), and introduction of a system of accreditation and follow up, based on knowledge and competencies acquired. The need for collaboration and dovetailing efforts with the Agriculture Skill Council of India (ASCI) for developing occupational standards for different service providers (e.g., vaccinators, clinical attendants, AI workers, Animators, and so on) was emphasized in this regard. Further, it was brought to the attention of all that the NRLM had already developed draft curriculum for training of *Pashu Sakhis*, and this could be utilized by the NLM and others concerned as the starting point.
7. It is necessary to invest in capacity building and follow up support for CAHWs, including building capacities of communities that would be the recipients of their services. Community institutions may have to be created and/or strengthened to anchor the cadre of CAHWs and hold them accountable, along with periodic monitoring of their performance by government recognized veterinary institutions.
8. So far as small ruminants are concerned, women CAHWs (*Pashu Sakhis*) may be preferred over male CAHWs (*Pashu Sakhas*) for the following reasons:
 - Women's income is perceived as, and usually is, a supplementary source of household income; therefore, even small earnings are highly valued, with a higher probability of their continuation.
 - As goat rearing is primarily the responsibility of women of the household, there's better communication and more effective peer learning when women workers engage with the rearers.

- The approach contributes to empowerment of women, through enhancing their technical knowledge, skills, status in the community, and income.
 - Although the social restrictions on women's mobility are an issue of concern, they tend to ensure that services of *Pashu Sakhis* are always at hand, if required by the goat keepers.
9. Along with CAHWs/ *Pashu Sakhis*, there is a range of other non-state actors (viz., NGOs, veterinarians retired from government services, retailers, manufacturers and distributors of medicines and equipment) that do and can further play an important role in training and mainstream veterinary services, and this needs to be recognized.
 10. The possibilities of supporting CAHWs through ongoing Government programmes include the following:
 - National Mission on Protein Supplementation (support for goat scouts– and other possibilities)
 - National Livestock Mission (however, the mechanism and budgetary heads under which such support may be provided need to be clarified and elaborated upon)
 11. There was a call for evolving a set of institutional arrangement/s to serve as a bridge between the state animal husbandry/ veterinary services department and the goat rearers – this may include *Pashu Sakhis*, NGOs and local veterinary hospitals and dispensaries.
 12. One of the suggestions was in respect of support for a structured programme on health cover to be formulated by the states.
 13. Need for a veterinary practitioners' manual for government veterinary personnel.

3.2 Session II: Feed and Fodder Resources for Small Ruminants

One of the most important aspects of small ruminant development is the issue of availability of fodder and adequate nutrition, as well as access to and quality of grazing lands, but the issue has not received the attention it deserves. The second session on the first day of the workshop dwelt at some length on the situation, while also highlighting some good practices in pastureland management, feed and fodder resource development, and the impact of improved practices on animal health and productivity. Main points emerging from the presentations and discussions during the session are summarized below.

1. The presenters highlighted that fodder availability and shortage had been assessed mainly for large ruminants, and there was the need for authentic data on nutritional resources and pattern of their use for small ruminants.
2. Factors contributing to fodder scarcity included the following: reduced per capita agriculture land holding; reduced common grazing areas, including forest areas where grazing is allowed; increase in area under cash cropping and reduced availability of agriculture crop residues; and exports of (and export incentives for) animal feed and oil cakes
3. It was proposed that a policy demand for 25% allocation of NREGA budget for CPR development could be recommended; this would not only

support creation and/or development of community assets, but also serve as a disincentive to encroachment of common lands.

4. Organisations such as BAIF and FES had demonstrated exemplary models for rehabilitation and management of CPRs / Grazing lands, and necessary packages for doing so at scale need to be propagated.
5. Pasture management, restoration of habitat and grazing lands should receive priority in any small ruminant development programme and policy. It was also mentioned that a policy push for according priority to CPR development in watershed development programmes be given by the GoI. Funding for regular oversight and handholding support by NGOs, to support some of the above interventions, was also suggested.
6. An initiative was required to open a dialogue, and long term policy/ planning for dealing with abandoned cattle in forest lands
7. Adoption of measures for rangeland improvement was critical to development of small ruminants, including improving the productivity of common grazing lands, and creation of livestock watering points.
8. Among the methods suggested for improving productivity were the following:
 - Supplementary feeding
 - Rehabilitation of grazing lands
 - Establishment of forage/fodder banks at the village level
 - Conservation of forage, including monsoon grasses
 - Addressing other issues being faced by pastoralists, for e.g., availability of water points; conflicts with resident communities along the migratory route; security of shepherds and their herds; and health cover
9. The presenters and panelists in the session suggested developing a focused policy on fodder management and promotion of improved feeding practices for small ruminants, including mineral mixture supplementation, promoting plantation of fodder trees on available land, training farmers on best practices like straw enrichment, Azolla feed supplementation, and silage making to improve the quality of fodder for livestock.
10. In PRADAN's work area where improved feeding practices were introduced along with preventive health care (in Odisha), the following results were observed:
 - Milk deficiency (in children) was adequately addressed
 - Good growth and lustre observed in goats and their kids
 - Kid mortality reduced significantly
 - Timely attainment of estrus in does
 - Reduced incidence of disease in kid and adult goats

3.3 Session III: Long-term Measures for Small Ruminant-Based Livelihood Development

Presentations and discussions in the last session on the first day of the workshop explored possibilities in the long-term which could enhance returns for small holder sheep and goat keepers; these measures revolved around the following themes:

- Breed conservation and improvement
- Small ruminant marketing
- Community-based insurance for small ruminants

3.3.1 Breed conservation and improvement

While there is a high prevalence of non-descript breeds in the country, there are also many characteristic breeds which have not been adequately studied and/or recognized. There is no specific policy for small ruminant breeding, and interventions for breed improvement have been restricted mainly to cross-breeding local breeds with superior bucks of recognized breeds. At the same time, livestock keepers have limited access to quality breeding bucks. The conclusions and recommendations emerging from presentations on breed conservation and improvement are as follows:

1. Develop and implement a comprehensive approach to breed conservation and development; the desirability of encouraging community led activities in breeding, along with health cover and extension, was reemphasized, with recognition of livestock keepers as primary stakeholders in deciding breeding goals.
2. It was emphasized that small ruminant genetic improvement would require long-term commitment and strong institutional support; the ensuing rewards in terms of increased productivity and rearers' incomes would be manifold. A reasonable tenure for breeding programmes would be a minimum 10 years.
3. For breed improvement interventions to be effective and successful, institutional frameworks for community involvement are vitally important; these could also be integrated into an overall approach aimed at small ruminant improvement. Capacity building of interested goat-keepers in preparation of bucks suitable for breeding purposes was also suggested.
4. There is an urgent need for long-term land use planning to ensure space and place for nomadic shepherds in the agriculture crop cycle; in order to achieve the aforementioned, government urgently needs to engage in a multi-stakeholder dialogue with shepherds, farmers, local authorities and scientists to ensure survival of migratory herds and their keepers into an ecological future.
5. Based on experiences of NARI and other institutions engaged in breed improvement, it was concluded that propagation of artificial insemination in small ruminants at breeding centres was a feasible and effective approach to faster production of quality germplasm.
6. In the case of migratory shepherds (based on experiences of LPPS), it was highlighted that
 - Shepherds make their own experiments to develop the best possible genotype, and generally do not need support with breeding.
 - Security is essential for the nomads and their herds
 - Better access to animal health care needs to be urgently addressed
 - The rationale for establishing "elite herds" at government research institutes was questioned.

3.3.2 Small ruminant marketing

Small ruminant marketing is characterized by distress sales, leading to sub-optimal price realization for livestock keepers. The market infrastructure is underdeveloped, with little or no governmental regulation, and although trading channels are well-organised, the trade is not. Based on experiences from imGoats project which was implemented by ILRI in partnership with BAIF in Udaipur district of Rajasthan, the following conclusions and recommendations were put forth:

1. Access of goat rearers to distant /export markets is limited primarily because of closed networks of traders, and lack of clarity on modalities of transporting live animals (interstate barriers), coupled with high risk during transportation
2. Governance issues
 - Lack of infrastructure, including absence of market yards and/or absence of requisite facilities for assembly of animals, or their upkeep by way of availability of shelter, fodder and water
 - Poor transportation facilities – lack of proper vehicles, and poor condition of roads (e.g., from Jhadol to Udaipur) risks injury to animals in the transportation process
3. Critical intervention points in the value chain of goats and sheep, as well as by-products of the goat and sheep industry, need to be identified, and appropriate strategies formulated and implemented for value chain development
4. It may be advantageous to link production clusters with processing centres, and models of linking primary producers with the consumer base, especially in urban markets, may be established; one of the options is for the processing plants to be owned by producer companies.
5. Improved access to market information would enable livestock keepers to tap the potential of existing nearby urban markets, while also gain through systematic planning of sales, taking into account preferences of butchers (and thus consumers).
6. Market awareness and facilitative support for livestock keepers would also enable improved returns from niche markets, viz., rearing of male goats for sacrificial purposes on special events, such as Bakr Eid.
7. Improved access to credit to goat keepers to support them during emergency needs and avoid distress sales was strongly suggested by both presenters and panelists. It was also mentioned that synergies between NLM and microcredit for small ruminants needed to be developed.
8. Market linkages should be an important part of the projects to enable farmers to link farmers to traders/potential markets; export markets and retail chains also present significant untapped market potential.

3.3.3 Community-based insurance for small ruminants

1. Experiences of The Goat Trust and its partner agencies suggest that introduction of community-based insurance makes the *Pashu Sakhi* strategy and support system more accountable and responsive to the service recipients
2. Mainstreaming of community mutual insurance models within the NLM framework was strongly recommended.

4. RECOMMENDATIONS

The presentations and panel discussions on January 16 were followed by discussions in two smaller working groups the following day, with the aim to distil lessons from the presentations and deliberations in the workshop, and draw out strategic recommendations for strengthening goat and sheep based livelihoods in the country. A summary of the emerging recommendations is provided below:

1. Under Mahila Kisan Sashaktikaran Pariyojana (MKSP) of the National Rural Livelihood Mission (NRLM), NGOs work closely with the Government and can submit proposals. Taking this as an analogy and precedence a window may be created under National Livestock Mission (NLM) enabling NGOs to take more interest and submit proposals to the State Government in consultation with district level officials.

[Action: DADF, supported by SA PPLPP and NGOs associated with NRLM]

2. NGOs are interested in building capacities in the Panchayati Raj Institutions (PRIs) so as to develop proposal for improvement of productivity of different kinds of common lands since this is a very desirable activity for augmenting nutritional inputs for small ruminants. Similarly developing water bodies in common lands along migratory route of shepherds is another necessity. It will be helpful that desirability of involving local NGOs by the PRIs for this purpose is highlighted in the guidelines for NLM.

[Action: DADF, supported by SA PPLPP]

3. A standardized training curriculum for Community Animal Health Workers (CAHWS), clearly defining the kind of livestock to be dealt with by them may be developed under the Sub-Mission on Skill Development, Technology Transfer and Extension. This may be further followed up by preparation of occupational standards for CAHWS as well as specifications on quality and performance of services provided.

[Action: DADF, in consultation with Veterinary Universities]

4. Separate guidelines for sheep and goat development are necessary since sheep rearing is generally a primary vocation of the rearers while goat rearing is a supplementary activity, more widespread, and practiced by a range of communities.

[Action: DADF]

5. Design of breed improvement programme and breeding goats may be decided in consultation with livestock keepers. Community led breed improvement programmes must focus on formation of Breeders' Associations for conservation of indigenous breeds and their genetic improvement through selection.

[Action: DADF and organisations involved in small ruminant breeding research and improvement programmes]

6. There is need for creation of a mechanism for inter-ministerial coordination of land use planning and policy making with respect to common land, wasteland

and grazing areas. Involved Departments may be Animal Husbandry, Forest, Rural Development, Agriculture & Cooperation, Water Resources etc.

[Action: DADF, Ministry of Agriculture and Government of India]

7. Five Regional Workshops will follow this National Workshop.

[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]

8. Use of ICT based tool for migratory shepherds may be encouraged and facilitated to enable them seek assistance on livestock health and production and obtain advice and information on related matters.

[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]

9. Concerted efforts may be made to tap funds available under Corporate Social Responsibility (CSR) for use in animal husbandry projects.

[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]

10. Animal shelters to be designed in accordance with the local agro climatic conditions.

[Action: State Animal Husbandry Departments, concerned NGOs]

11. For last mile delivery of health care the role of women community health workers is critical and requires sustained support in capacity building. Scope of their services needs to be clearly defined and demarcated. They are to be made accountable to the service recipients, anchored within community institutions, and also have linkage with local veterinary institutions.

[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]

12. Inclusion of community based livestock insurance within the framework of NLM was strongly recommended as a strategy for risk reduction in small livestock holdings.

[Action: DADF, SA PPLPP and concerned NGOs]

13. Development of infrastructure of livestock markets, as well as a conducive policy environment for livestock trading may be considered as priority areas for investment by the Government.

[Action: DADF]

14. Significant investment on development of social and human capital over a sustained period of time would be necessary for the community based model to accrue sustainability.

[Action: DADF, State Animal Husbandry Departments, agencies supporting small ruminant development programmes]



Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, May 2015, Jaipur



1. INTRODUCTION AND OBJECTIVES

A one-day regional workshop was conducted on 23 May, 2015 on strengthening small ruminant based livelihoods in Western India. The workshop was organized by Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner and Centre for microFinance (CmF), Jaipur with support of Department of Animal Husbandry, Dairying and Fisheries (DADF), Government of India, South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), New Delhi & TATA Trusts, Mumbai.

Nationally, goat and sheep population stands at 200 million (39% of the country's total livestock population), out of which 15.35% belong to Rajasthan and 3.32% are in Gujarat. Sheep and goats are among the most indispensable of assets owned by resource-poor families, including marginal and small farmers, and the landless.

A national workshop on “Strengthening Small Ruminant Based Livelihoods” was organised jointly by the South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of FAO of the UN and National Dairy Development Board (NDDB), India, and the Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture (MoA), Government of India (GoI), at New Delhi on January 16-17, 2015.

One of the key collective recommendations emerging from the national workshop was the need to organize regional (multi-state) workshops in different parts of the country, to enable greater participation of government and non-government officials, and highlight the importance of small ruminants as a pathway out of poverty. Accordingly, the workshop at Jaipur was organized with participation of government and non-government delegates from the states of Rajasthan and Gujarat. About 100 participants representing different institutions and organizations from Rajasthan & Gujarat participated in this workshop. A list of all participants at the workshop, with their contact details, is placed at Annexure 2-B.

The **objectives** of the regional workshop were:

1. To develop a common understanding among government, non-government and civil society stakeholders regarding current status of policies and programmes for small ruminants, and livelihoods based on sheep and goats in the states of Rajasthan and Gujarat.
2. To share demonstrated best practices in goat- and sheep-based livelihood improvement, and discuss their potential for scaling up.
3. To identify issues and constraints in promotion and/or development of small ruminant based livelihoods, based on experiences in the region.
4. To facilitate establishment of linkages and institutional collaboration between and among participating stakeholders for small ruminant-based livelihoods development.

2. INAUGURAL SESSION

Inaugurating the workshop, the Chief Guest Mr. Sanjay R Bhoosreddy, Joint Secretary (Administration and National Livestock Mission), DADF, MoA, GoI highlighted the importance of livelihood promotion based on small ruminants for the rural poor in India. He requested participants to share the problems and challenges faced by them, assuring them that these would be constructively addressed, and emphasized the importance of collaboration across agencies for finding lasting solutions to the problems ailing the sector.



Prof. (Dr.) Col. Ajay Kumar Gahlot, Vice-Chancellor, Rajasthan University of Veterinary & Animal Sciences (RAJUVAS), Bikaner in his key-note address emphasized on the importance of participation of women in livestock farming, particularly small ruminants. He mentioned that women contribute 90% of the labour involved in livestock rearing. Highlighting the issue of small

ruminant migration from Rajasthan, he called upon the delegates to deliberate upon the ways and means to address the issues and challenges faced by farmers rearing small ruminants.

Mr. Aswani Bhagat, Secretary, Department of Animal Husbandry (DoAH), Government of Rajasthan said that livestock is a major contributor to the economy of Rajasthan, adding that marginal farmers have benefitted from goats and sheep in times of severe drought in the state. Over the past few years, unseasonal rains and recurrent droughts had become major natural disasters leading to heavy losses in crop production. It had repeatedly been found that livestock, especially small ruminants, helped farmers to cope with these harsh situations, enabling them to tide over the difficult times. The Secretary DoAH was concerned about identification of inefficiencies that prevented achievement of the full potential of government schemes for beneficiaries.

Mr Sanjay Bhoosreddy, Joint Secretary (ANLM), DADF, GoI was the Chair for the subsequent sessions, and supporting him on the panel were Mr. Aswani Bhagat, Secretary Animal Husbandry Government of Rajasthan, Prof. (Dr.) Col. A. K. Gahlot, Vice-Chancellor, RAJUVAS, Dr. Ajay Gupta, Director, Department of Animal Husbandry (DoAH), Government of Rajasthan (GoR), Dr. A.J. Kachhia Patel, Director, Department of Animal Husbandry, Government



of Gujarat (GoG), Mr. Yatesh Yadav, Executive Director, CmF, Mr. Ganesh Neelam, Development Manager, TATA Trusts, Mr. Jaipal Singh, Development Consultant, and Ms. Varsha Mehta, Team Leader, SA PPLPP.

3. SESSION I: POLICIES AND PROGRAMMES FOR SMALL RUMINANTS IN GUJARAT AND RAJASTHAN

There were three presentations made during the first session, focusing on the policies and programmes pertaining to small ruminants in the two states of Rajasthan and Gujarat, and the challenges in development of goat and sheep-based livelihoods. The scenario of Rajasthan was presented by Prof A K Gahlot, VC-RAJUVAS and Dr Ajay Gupta, Director, DoAH, GoR; and Gujarat by Dr A J Kachchia Patel, Director, DoAH, GoG.

3.1 Rajasthan Presentations: Salient Points

Goat and sheep population: The state has a good population of small ruminants and it ranks first and third in goat and sheep population, with 16% and 14% of the country's sheep and goat population respectively. Between 1951 and 2012, the goat population in the state has increased four times. Jaisalmer and Barmer in western Rajasthan are the districts with the highest numbers of livestock in the state.

Contribution to state economy: Contribution of livestock sector to the state GDP, as of 2011-12 was 10.2%, whereas the contribution of agriculture and livestock together was 22%. *Small ruminants provide the most appropriate and effective drought-proofing mechanism in the state.*

Milk, meat and wool production: The state produces 15,000 MT wool and 175 MT of meat per annum. In addition, 40,000 live sheep and goat are exported out of the state daily. It is also estimated that 12% of the state's total milk production comes from goats.

Breed: The state has 8 registered breeds of sheep (Magra, Chokla, Malpura, Marwari, Sonadi, Jaisalmeri, Nali and Pugal) and 3 registered breeds of goat (Sirohi, Marwari and Jakhrana). Non-availability of males and females of quality breed in the farmers' flocks was the main factor responsible for low production; importance of conservation and improvement of indigenous sheep and goat breeds in the state, through coordinated efforts, was underscored.

Breeding policy: The state's breeding policy for small ruminants emphasizes conservation of breeds in their native tract; replacement of exotic sheep with indigenous sheep breeds; selective breeding and up gradation of non-descript sheep and goat breeds for higher body weight, wool & milk production; prevention of in-breeding and castration of non-descript males to avoid indiscriminate breeding. The fact that some breeds continued to be characterized as 'non-descript' was in fact, a shortcoming on the part of the agencies responsible for breed registration.

Grazing lands and fodder: Overgrazing has reduced the productivity of resources in pastoral areas. At the same time, encroachment and diversion of pasturelands are serious issues of concern, but little is being done by any department or organisation in this regard.

Livestock markets and trade in small ruminants: A large share of the revenue earned from goat sales goes to the middlemen, mainly because of the poor marketing infrastructure as far as livestock is concerned. The marketing channels are long, and market information is lacking.

Coordination and collaboration with other agencies: A synergistic approach was required for optimal development of the small ruminant sector, as development of the sector was being hindered by the communication gap and lack of synergistic approach between various agencies engaged in the small ruminant development sector.

Constraints: The following were cited as major constraints in promotion of small-ruminant based livelihoods:

- Small land holdings
- Small ruminant farmers continue to rely on traditional rearing methods, which generally result in sub-optimal production
- Scarcity of feed – grazing resources are diminishing, and overgrazing has led to degeneration of resources in pastoral areas
- Frequent droughts resulting in migration
- High mortality rates in herds
- Limited expertise and information
- Unavailability of organized market – lengthy marketing channels and lack of market information; production system lacks market orientation, which is an important driving force for increased production

Recommendations: The following recommendations emerged from the presentations made by the two speakers:

- Removal of encroachment from pasture lands
- Modification of feeding and management practices for improved feed conversion ratios
- Because of their similarities, complementarities and parallels, R & D activities in sheep and goats should, wherever possible, be integrated, and implemented at the same location
- There is a need for effective coordination and closer linkages between various agencies and institutions involved in small ruminant production; an integrated and synergistic approach involving the DoAH, central government institutions, Veterinary / Agriculture Universities and NGOs is necessary in order to promote achievement of development objectives of the sector
- Association of dedicated NGOs with government institutions for planning and implementation of small ruminant development schemes
- Investment in development of organized livestock markets and information dissemination to end-users for increasing producers' share in the sale price

3.2 Gujarat Presentation: Salient Points

Goat population: In contrast with the trend in the country, goat numbers in Gujarat showed an increase between 2007 and 2012, with a population of nearly 50 lakhs. Sheep population declined marginally during the same period, and stood at 17.1 lakhs in 2012.

Distribution: Whereas goats are well-distributed in all parts of Gujarat, the sheep population is restricted mainly to the arid and semi-arid areas of the state, i.e., Saurashtra, Kutch and North Gujarat. Sheep are reared mainly by Rabari & Bharwad communities, and goats are the choice of various tribal and socially & economically backward groups in society.

Source of livelihood: Comprising 25% of the state's livestock population, small ruminants contribute 10% to the state livestock sector GDP, and are believed to be the most important source of livelihood for the landless in rural areas, as well as an important source of nutritional security for the poor. The economic value of goat is estimated as 130% that of a cow.

Meat and milk production: Goats contribute 2.33% in total milk production and 8% in meat production in the state of Gujarat.

Breed: With Marwari, Patanwari and Duma (the last yet to be recognized) sheep breeds in the state, and five registered goat breeds including Gohilwari, Kachchi, Mehsani, Surti and Zalawari, Gujarat state has the highest number of registered small ruminant breeds in the country.

Breeding policy: The state has notified a separate breeding policy on small ruminants, with an emphasis on conservation of indigenous breeds. Breeders' Associations have been formed for each of the breeds in the state, which sets out the policy and conservation initiatives specific to the breed, and is expected to provide services to the members; the state government provides financial, technical and administrative assistance for establishment of these Associations. Veterinary and other technical inputs are provided free of cost.

Pastureland development: A comprehensive Gauchar Policy (2015) has been formulated for conservation and development of grazing lands, with an associated budget of Rs 100 crores for the period 2015-16.

Goat and sheep development programmes: Apart from the centrally assisted schemes, the state government has a number of schemes and projects for development of goat and sheep-based livelihoods. These include: subsidy on establishment of goat units, conservation of threatened breeds (Surti goat), Intensive Sheep and Goat Development Project, sheep Extension Service Centers, Service Centers for migratory flocks, wool grading centers, training programmes for breeders, as well as the Gujarat Sheep and Wool Development Corporation.

Constraints: The following were cited as bottlenecks in development of the small ruminant sector in the state:

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

- Limited commercial touch to small ruminant husbandry, and poor interest by corporates
- Poverty and low educational profile of primary stakeholders, which restricts investment in the sector
- Migratory nature of occupation (sheep rearing in particular), which poses a challenge to government interventions
- New generation is reluctant to continue with the traditional occupation of their ancestors
- Loss of economic value of sheep rearing
- Low prolificacy and demand of wool, which has gradually been replaced by synthetic fiber
- Market for goat meat, milk and other by-products is not well-structured; low acceptability of goat milk among educated classes
- Lack of research and development in exploring value addition possibilities

3.3 Open House Discussion: Salient Points

During deliberations following the presentations of the first session, there emerged certain issues, observations, and suggestions as mentioned below:

- Breed belongs to the livestock keepers, and it is the responsibility of all concerned stakeholders to come together for its recognition, registration and preservation.
- The term ‘unrecognized’ (instead of ‘non-descript’) should be used for animals which may be characterized as a specific breed, but which have not yet been registered
- Incidence of mastitis among goats which have been introduced to an area from different agro-climatic zones is much higher and more dangerous.
- The concept of optimum feeding was stressed upon, along with the importance of feed & fodder management and nutrition
- For development of pasturelands, there should be minimal use of mechanization, and land leveling is not required. Otherwise, small ruminant specific grass and other species are lost, and leveling of the land results in the ouster of small ruminants.
- There should be representation of a Maldhari (small ruminant farmer) in the Gauchar Committees constituted at the Gram Panchayat and higher levels.
- Fodder tree species such as Ardu (*Ailanthus excelsa*) and Sahajana (*Moringa oleifera*) should be incorporated in pastureland development projects

4. SESSION II: EXPERIENCE SHARING

Members of the civil society, representatives of NGOs, development programmes, and research institutions in the state shared their programmatic and research experiences during the second session. Speakers included Mr Gajendra Kumar Vyas from Mitigating Poverty in Western Rajasthan (MPoWeR), Mr Dhannaram from Urmul Khejadi Sansthan (UKS), Mr Yatesh

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

Yadav from CmF, Dr Vishnu Sharma from PGIVER, RAJUVAS, and Smt Kesari Devi (*Pashu Sakhi*), Smt Pooni Devi (DPIP beneficiary), Smt Babita (*Pashu Sakhi*) and Smt Asha Ji (DPIP beneficiary). Highlights of their presentations/talk are mentioned below.

4.1 MPoWeR (Mitigating Poverty in Western Rajasthan)


MPoWeR is a joint initiative of the GoR, IFAD, SRTT and CmF, with its State Project Management Unit at Jodhpur

Area and poverty context: Western Rajasthan has a distinct livelihood pattern with high dependence on livestock, rain-fed agriculture and non-farm activities locally or through migration. The area is characterized by high levels of poverty; further, poverty in this region is not a static function, because of high dependence of livelihoods on natural resources, and natural resource base dynamics. Land holding is not a direct indicator of well-being in the area as agriculture is rainfed and generally unreliable

Livestock-based livelihoods: ARAVALI-UNDP on livelihood strategies in Rajasthan has indicated that the contribution of animal husbandry to household income is around 15%, varying from a low of 13.5% in the tribal areas to a high of 17.8% in the semi-arid zone. Baseline study for the project conducted by CmF indicates that 20% of the household income is derived from goat-rearing.

Extent of Project coverage: From development of a goat livelihood prototype by CmF at three clusters of Pokran, Bali and Abu Road, covering 350 HHs in the year 2012, the project has been systematically scaled up, and now extends to 8959 households through 28 Goat Clusters in six Blocks of the project area. By the end of March 2016, the project is expected to cover 10,500 households in 32 Goat Clusters.

NGO involvement: The project is being implemented in collaboration with 13 field NGOs in six Blocks



"Gona (Goats) and Sona (Gold) both help in the time of financial crises"

SHG member from Baytu, Barmer

Growth engines: The project advocates the following six growth engines for establishment of goat-based livelihoods in the semi-arid zone:

- Institutionalizing families – cluster-based approach and provision of microcredit through SHGs
- Disease prevention & health management – Fee-based services of trained *Pashu Sakhis* and Para-vets
- Feeding management of goats – introduction of improved feeding practices, including use of mangers, and concentrates
- Housing & sanitation – construction of goat sheds, through project assistance and MGNREGA
- Breeding system – introduction of breeding bucks of Sirohi and Marwari breeds
- Marketing pattern – castration of male bucks, proactive and strategic sales

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

Project progress: Project progress in terms of outputs is as shown in the Table 1.1.

Table 1.1: Progress of MPoWeR (May 2015)

Sl.	Activities	Achievement
1	Goat clusters - number (350 families/cluster)	28
2	Total families - number	8959
3	Total Goat-Based Livelihood Groups formed (number)	655
4	Goat sheds prepared (number of families)	3054
5	Goat sheds under construction- number	521
6	<i>Pashu Sakhis</i> trained- number	187
7	Para-vets trained- number	28

Challenges: In terms of challenges faced by the project in achievement of its objectives, the following were stated:

- Decline in quality of goat herds because of unscrupulous breeding practices
- Fodder stress during summer months, causing distress sales, including sale of goat kids at a tender age
- Challenging geographical and socio-economic characteristics of the area and the population, which makes effective delivery of institutional veterinary care services very difficult
- Customary myths and practices which impede adoption of improved management and husbandry practices, viz., castration of bucks
- Insufficient time (project duration) for building apex institutions to sustain the programme beyond December 2016

Plan of action: Moving forward, the project intends to:

- Establish a network for community-based insurance in goats
- Establish identity and competitiveness of primary traders' network
- Support proactive marketing strategies
- Building Brand Equity through dissemination of relevant information on local breeds, e.g., Marwari and Jakhrana
- Facilitate provision of financial services and credit support to primary producers
- Facilitate provision of inputs and services for goat production
- Enhance skills of community and cadre of resource persons (*Pashu Sakhi*, Para-vets) through entrepreneurship models
- Work towards sustainability of interventions by providing necessary support for strengthening community institutions, viz., GBLDC

4.2 Urmul Khejadi Sansthan (UKS)

A member of the URMUL group of institutions, UKS has been functioning for nearly two decades, with presence in two Blocks of Nagaur district – Jayal and Nagaur. With reference to a small ruminant based women's empowerment project, which the organisation had implemented with support from Heifer International India, the speaker made the following points.

Project objectives: Implementation of the project was undertaken with the following objectives:

- To promote improved goat-rearing
- To raise household income from goat-rearing by 25% (from Rs 40,000 to Rs 50,000)
- To systematically promote goat enterprise through organized efforts
- To enhance nutritional status of families through production of milk and vegetables
- To promote environmental development and cleanliness
- To establish linkages between the government and the goat-rearing project/ *Pashu Sakhis*

Activities: Among the activities undertaken were formation of women's groups, savings and credit, promotion of improved management practices, breed improvement, construction of shelter for housing livestock, fodder storage, improved marketing strategies, kitchen gardening, functional literacy, collectivization, and so forth.

Breed improvement: At the start of the project in 2012, the community had virtually no experience of producing or maintaining improved breeds of goats. The standard practice was to have an '*Amar Bakra*', which was used across households and generations for breeding purposes. As a result, there was severe inbreeding, poor growth, and the progeny fetched low returns. After the project promoted adoption of improved goat management practices, the community has started using improved quality breeding bucks; as a result, there have been improvements in herd productivity, and rearers are earning higher returns from the sale of bucks and goats. Furthermore, communities are undertaking buck exchange programmes in the project area, and there is rising external demand for quality breeding bucks from the project area.

Housing for goats: Implementation of the project has resulted in construction of well-ventilated goat shelters, maintenance of hygiene and cleanliness, and protection of livestock from inclement weather conditions; livestock housed in such shelters are not only healthy and secure, but also fetch higher sale prices. Use of feeder troughs and waterers has resulted in annual average savings of Rs 1800 per household.

Preventive veterinary care: Twenty trained community animal health workers are providing preventive and primary veterinary care services in the project area, resulting in a marked reduction in mortality and morbidity rates. In collaboration with the state, 5000 livestock were provided deworming and vaccination.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

Augmenting fodder resources and kitchen gardening: Each participating household planted at least 10 fodder and/or fruit trees with project support. Six hundred families planted 2,500 fodder trees of different species on their farmlands. Of the 625 families that started kitchen gardening, 500 benefited from vegetables produced. Fodder depots were established and are being managed by the Project Management Committee (PMC) formed under the project. In collaboration with the Gram Panchayat, efforts were initiated for bringing village wastelands under grass and fodder cultivation.

Marketing initiatives: A collective decision was reached to undertake sales of goats in an organized and collective manner, after castration of bucks at an early age, and rearing them for 9-10 months. Systematic contact was established with the traders, and it was decided to estimate sale price of animals on the basis of breed and live weight. Accordingly, 600 bucks were sold in an organized fashion.

Project outcomes: Apart from the results mentioned above, the project has led to an overall improvement in returns from goat-rearing, with an average increase of Rs 2,000 per buck sold; savings on account of higher availability of milk from goats; empowerment of women through self-help and capacity building; enrolment of girls in schools; better health and hygiene; increased biomass production; and “passing on the gift” – of the 400 families covered under the project (they received a pair of goats each), 250 beneficiary families have returned the favour by passing on a pair of goats each to another set of 250 households.

4.3 Centre for microFinance (CmF)

CmF, along with TATA Trusts, had recently concluded an action research study on assessment of markets, and market potential of goat-based livelihoods in the state of Rajasthan. Preliminary findings from the study were shared at the workshop and are summarized below.

Producers’ characteristics: Two categories of rearers were found to exist – small with herd size between 5 and 15 animals, and large with 80-300 animals, the latter found mostly in western Rajasthan and the Chambal area. The enterprises are frequently self-financed, or financed by informal sources. Rearing period is typically 6-12 months; sales are irregular; decision to sell depends on requirement of capital; price estimation based on visual assessment of weight. Whereas goat/sheep-rearing is the primary income generator among herdsman in western Rajasthan, small land-holding farmers usually practice goat-rearing as a secondary occupation.

Economics of goat rearing: Based on a study conducted by PRADAN at its project location in Abu Road, the following observations and results have emerged:

- Profit for farmer is maximized at 2 stages – 6 months and 1 year
- Working capital costs increase after 6 months as buck is completely weaned off and needs to be given concentrates and fodder.
- Labor costs also increase and negate the marginal increase in profit.
- Ideal recommended time to sell is at 6 months

Profit margins along the value chain: It was estimated that the primary producer gets over 60% of the final sale price, whereas the transporters, traders, and commission agents who bring the product to the end-user receive 30%, 2% and 7% respectively of the final sale price. Traders' income was estimated to range from Rs 15,000 (small trader) to Rs 50,000 (large trader) per month. Butchers' monthly income was estimated at 30,000 – 100,000 depending on the scale of operations and market demand.

Marketing/ value chain development options: Two options were put forth at the end of the study, and these were:

- (i) Establishment of a local/ regional slaughterhouse to facilitate pooling and slaughtering of animals, and create further market linkages for sales and exports
- (ii) Formation of Farmer Producer Organisation (FPO) at the district level for pooling animals for sale from nearby areas, creation of direct linkages with organized buyers in the market, and upstream market value-addition.

4.4 PGIVER, Jaipur, RAJUVAS

In its presentation, the speaker from the Post-Graduate Institute for Veterinary Education and Research (PGIVER) highlighted the entrepreneurship potential through small ruminants. Salient points from his presentation are summarized below:

- Goats contribute 4% of total milk production in the country
- As of 2012-13, Rajasthan produced 0.15 million tons of meat (2.6% of the country's production), of which 12.3% and 39.3% respectively was from sheep and goats
- Rajasthan produced 14 million tons of wool in the year 2012-13

Options for augmenting economic returns: Elaborating on the future prospects for small ruminant rearing, the following modules were shared with the participants:

- Module I – development of meat sector through fattening units and slaughter centres
- Module II – development of milk industry through goat dairy farms and value-addition
- Module III – development of wool industry, with a focus on the woolen yarn and carpet industry
- Module IV – development of organic products – milk, meat and wool – from small ruminants; in Rajasthan, production is organic by default, although not certified as such

Recommendations: Based on an analysis of recommended and existing practices, the following recommendations were put forth:

- Production of organic meat and wool
- Small ruminant fattening and processing centers
- Promotion of automated abattoirs
- Goat milk booths and parlours
- Identification of skill sets required for the above, and training of youth

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

5. SESSION III: PRIMARY STAKEHOLDER PERSPECTIVES

From Dausa and Dholpur districts of Rajasthan, there was participation of two *Pashu Sakhis* (women community animal health workers) – Smt Kesari Devi and Smt Babita Devi - and two livestock farmers – Smt Punea Devi and Smt Asha Devi, who shared their observations and ideas with the delegates at the workshop. A gist of their talks is presented below.

The *Pashu Sakhis* were felicitated by the chief guest Mr Sanjay R Bhoosreddy, who commended them on their hard work and dedication to help poor farmers for better rearing practices.

5.1 *Pashu Sakhis*

Sharing their success stories as *Pashu Sakhis*, both the women CAHWs mentioned that they have been providing preventive and primary veterinary care services in their villages over the last five years.

Training: They had undergone a series of training and other capacity building measures on improved animal management practices (IAMP); subsequently, they provide training and advice to livestock farmers in their respective villages.

Empowerment: As a result of their work as *Pashu Sakhis*, the women had gained recognition in society, and received several opportunities to interact with a wide range of stakeholders, which in turn gave them the confidence to share their views at various forums.

Income: The main earnings of *Pashu Sakhis* come from their goat enterprise; their herd size has increased from 2-3 goats to over 10 animals, including one buck. Income from sale of animals is in the range of Rs 40,000-50,000 per annum, and earnings from milk are estimated to be in the range of Rs 15,000-20,000 per annum.

5.2 Goat Keepers

Smt Asha Devi from village Gironia in Dholpur shared that her earnings from goat-rearing activities had risen significantly after adoption of IAMPs as advocated by the *Pashu Sakhi* in her village, adding that her annual income from the occupation was in the range of Rs 150,000-200,000. Her success had encouraged many other farmers to adopt goat-rearing as a profitable and reliable enterprise.

6. SESSION IV: SUB-GROUP DISCUSSION AND PRESENTATIONS

To enable meaningful participation of all stakeholders, and obtain specific recommendations for improvement of goat and sheep-based livelihoods, the post-lunch session was devoted to discussions in three smaller groups, on the following topics:

6.1 Group I: Strengthening goat-based livelihoods

Discussions in this group were facilitated by Mr Jaipal Singh, Development Consultant and presented by Mr B N Tiwari, GDS (Ajmer). The group deliberated on the following issues questions:

- What are the challenges for improving goat-based livelihoods, especially for the landless, marginal and small farmers?
- How can these challenges be addressed so as to enhance returns to the primary producers?

6.2 Group II: Strengthening sheep-based livelihoods

Group discussion was facilitated and its recommendations were presented by Dr Umesh Aggarwal, OSD, RAJUVAS. The group deliberated on the following questions

- What are the challenges for improving sheep-based livelihoods, especially for landless, small and marginal farmers?
- How can these challenges be addressed so as to enhance returns to the primary producer?

6.3 Group III: Integrating primary producers with markets

The group working on market issues with respect to promotion of goat and sheep-based livelihoods deliberated on how to integrate primary producers with the market, to enable farmers to get a fair share of the consumer price. Group discussions were facilitated by Mr Sanjay Sharma, PRADAN-Dholpur and presented by Mr B G Rathore, BAIF-Udaipur.



Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur, 23 May 2015

7. Plenary

Based on the presentations made by the three groups and ensuing discussions, the observations and recommendations which emerged are presented below:

7.1 Enhancing Productivity

- Support measures for scaling-up the *Pashu Sakhi* model which has been demonstrated for its efficacy and effectiveness.
- Government should provide funds for extension services like establishment of *Pashu Sakhi* at local level and government should organize regular trainings to *Pashu Sakhis* and provide master trainers at the local level.
- For improving breed/ herd quality, a ‘goat kids’ nursery’ should be established at the district level for provision of quality breed kids to the farmers.

7.2 Livestock Farmers’ Associations

- Establishment of farmers’ association at the Panchayat level for management of collective sales.
- Estimation of sales price of animals by the farmers’ association on the basis of breed and weight of the animals.
- Goat farming and marketing are both highly unorganized; there is a need to design interventions for systematic and collective marketing of goats, viz., through promotion of Goat Farmers’ Organisation, incentives for breeding of quality animals and their recognition through award functions such as goat fairs (*mela*) at the Tehsil level.

7.3 Marketing, Value-Addition and Market Infrastructure

- Primary traders and farmers’ meets should be facilitated to enable improved collaboration and planned sales.
- Livestock market infrastructure development at the local/ Panchayat level, wherein sales of animals can take place on a regular basis.
- Development of standards for sale of animals based on the breed of the animal (e.g., parameters for the estimation of quality of Marwari and Sirohi bucks and goats).
- Support undertaking of a market study of small ruminants’ animal produce at local and regional levels.
- Processing plants for goat meat and goat milk to be established by the government at least at the Divisional level.
- Demand for sheep meat (mutton) is lower than goat meat (chevon) in the domestic market, but has high export potential – the challenge is to be able to tap into the export market. Support establishment of processing units for mutton, targeting the export market, to enable farmers to get the best price for their produce.
- Wool industry in the country is under-developed and unorganized; the government should work towards development of the wool industry, including through measures to promote organized trade, as wool is a key

by-product of sheep-rearing, and can play a significant role in development of the industry.

7.4 Financial and Risk Management Services

- Enhancing availability of financial services for livestock farmers and farmers' associations, especially availability of timely credit.
- Resource persons for technical and scientific inputs regarding finance, insurance and marketing should be available/ provided to goat-keepers at the local/ Tehsil level.
- Requisite financial support for promoting goat-based enterprises to be provided by the government through a revolving fund.
- Community-based insurance facility to be promoted by the government, through the goat farmers' associations (demonstrated lower mortality rates observed in associations serviced by trained *Pashu Sakhis*).

7.5 Challenges Specific to Sheep-Based Livelihoods

- Scarcity of grazing land and fodder resources especially for migratory herds
- Higher parasitic load
- Decreasing population of sheep as compared to goats (in the state of Rajasthan)
- Intensive system of sheep rearing is neither viable nor sustainable
- Problem of sheep-rearing being perceived as a 'lowly' occupation

After closing remarks by the Chair, the Executive Director, CmF, offered a vote of thanks, and the workshop was concluded. The recommendations from the workshop are presented in the following section.

8. RECOMMENDATIONS FROM THE WORKSHOP

1. Small-ruminant rearing is a significant source of livelihood for many households in the states of Rajasthan and Gujarat, and programmes aimed at strengthening the sector should be undertaken by the central and state governments, in collaboration with NGOs and other civil society actors.
2. Formation of Farmer Producer Organisations (FPOs), for livestock keepers to systematically engage with the changing economics of goat and sheep markets was emphasized.
3. Issues and challenges at the state level and between the livestock-keepers and the district/ state are well within the purview of the state government to resolve; GoI could support by way of issuance of directive orders and guidelines, wherever required and requested by the state agencies
4. The issue of breeding by negative selection has been a concern in the small ruminant sector, and although it has been often talked about, the need to act is now imminent. The DADF, GoI will formulate a policy and/or framework under the NLM guidelines to incentivize retention of the best breeding bucks and rams

5. Programmes to prevent breeding by negative selection to be planned and supported by state and central governments; and implemented by state and non-state agencies. Possibilities include purchase (by government farms) of best quality bucks for breeding and their incorporation in the breeding network, either through AI or otherwise; handing-over responsibility of breeding bucks to Gram Sabha/ people's institutions after building their capacities; and involvement of universities, and other institutions.
6. Augmentation of feed and fodder resources for sustainable development of the small ruminant sector is mandatory, and calls for greater inter-sectoral coordination in planning, implementation and monitoring of projects.
7. The shift to community-based insurance in small ruminant livestock was strongly recommended, in tandem with creation of a cadre of grassroots workers (*Pashu Sakhis* and/or para-vets) who will ensure that mortality rates are reasonably lowered; the NLM is already working on developing a model community insurance scheme based on experiences in Rajasthan and Andhra Pradesh – this would be included in the revised NLM guidelines
8. A major thrust area requiring government intervention pertains to livestock markets, especially for goat and sheep meat; it was decided to develop a paper, based on recommendations from the national and regional workshops, for strengthening of the markets for goat and sheep meat, and use it for consultations with stakeholders, including the municipal bodies, FSSAI, DADF, MoEF/Pollution Control Board, and so on.
9. There's a need to connect the small islands of excellence which have been demonstrated through various pilot projects; establishment of platforms for regular and systematic exchange of ideas and success stories between and among various stakeholders was suggested; the responsibility for enabling these exchanges rests with universities, state and central governments. To begin with, the AH departments of the state and central government could provide links to relevant information on their respective websites.



Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, July 2015, Bhubaneswar



1. INTRODUCTION AND OBJECTIVES

A one-day regional workshop was conducted on 24 July, 2015 at Bhubaneswar, on strengthening small ruminant based livelihoods in Eastern India. The workshop was organized by Fisheries and Animal Resources Development Department (F&ARDD), Odisha and Regional Centre for Development Cooperation (RCDC), Bhubaneswar with support of Department of Animal Husbandry, Dairying and Fisheries (DADF), Government of India (GoI), and South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), New Delhi.

South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of FAO of the UN and National Dairy Development Board (NDDB), India, and the DADF, Ministry of Agriculture, GoI, had organized a national workshop on “Strengthening Small Ruminant Based Livelihoods” at New Delhi on January 16-17, 2015, and following up on the recommendations of this national workshop, regional (multi-state) workshops were being facilitated in different parts of the country, to enable greater participation, and highlight the importance of small ruminants as a pathway out of poverty. The workshop at Bhubaneswar was organized with representation of government and non-government delegates from the five eastern Indian states of Odisha, West Bengal, Bihar, Jharkhand, and Chhattisgarh. About 90 participants representing different institutions and organizations from these states participated in the workshop; a list of all the participants is placed at Annexure 2-C.

In a country with a total livestock population of 512.05 million, of which 40% are goats and sheep, the livestock sector contributed over a quarter of the total value of output in agriculture, fisheries and forestry (in 2012-13, at current prices). Notwithstanding, the significance and contribution of the sector is severely compromised on account of inadequacy of technically qualified personnel, and generally ill-equipped veterinary units around the country, especially in rural areas. At the same time, productivity and efficiency of the livestock production systems is constrained by diminishing fodder resources, agriculture-centric land use, and development policies that are non-cognizant of the agriculture-livestock-ecology interactions and interdependence.

In Odisha, the host state for the regional workshop in eastern India, mixed crop-livestock farming system is the predominant farming system with over 90 per cent of farms of all categories conforming to it. The livestock wealth of the state is impressive in numbers across all species, constituting a natural resource base with immense livelihood implications, even though productivity levels are very low. Livestock holding in Orissa is equitable as over 80 per cent of all livestock are owned by the marginal / small holders and the land less. The sector has ample scope to substantially enhance the production to meet the domestic market demands, create employment and income generating opportunities for the rural poor and enhance their food and livelihood security (F&ARDD, GoO, 2010).

The **objectives** of the regional workshop were:

1. To develop a common understanding among government, non-government and civil society stakeholders regarding current status of policies and programmes for small ruminants, and livelihoods based on sheep and goats in the participating states.
2. To share demonstrated best practices in goat- and sheep-based livelihood improvement, and discuss their potential for scaling up.
3. To identify issues and constraints in promotion and/or development of small ruminant based livelihoods, based on experiences in the region.
4. To facilitate establishment of linkages and institutional collaboration between and among participating stakeholders for small ruminant-based livelihoods development.

2. INAUGURAL SESSION

The workshop was inaugurated by Honourable Minister Shri Pradeep Maharathy, Minister of Agriculture, Fisheries & Animal Resources Development, Government of Odisha with the lighting of a lamp.

Welcoming all the participants and expressing his delight over the fact that the workshop was happening in Odisha, Shri Bishnupada Sethi, IAS, Commissioner-cum-Secretary, F&ARD Department, Government of Odisha stressed on the importance of small ruminant based livelihoods in reducing poverty among small and marginal farmers, for whom this is usually a dependable and secondary source of household income. Shri Sethi shared that the state had a population of 15 lakhs sheep and 65 lakhs goats as per the 2012 Livestock census, and was among the first to formulate a pro-poor livestock policy in the year 2002, enabling steady growth of the sector and the livestock-keepers. Alluding to the role played by women in goat and sheep-rearing, he spoke about their contribution to family income, and the women-empowering nature of this occupation. He also highlighted a fortune of the state of Odisha, the Kendrapada breed of sheep, which is known to give multiple births at least 80% of the time. As a result of various initiatives taken by the F&ARDD, livestock mortality in the state had declined from 29% to 13% in recent years. Improved bucks were being distributed from its five state government owned goat farms. Referring to the PoG (Passing on the Gift) model of Heifer, with whom the state government was collaborating in Mayurbhanj district, Shri Sethi advocated its benefits and the desirability of extending the model to other districts.

In his speech, the Commissioner also drew the attention of the delegates to an issue of concern for the state government, and the measures to be adopted. Stating that support under the National Mission for Protein Supplementation (NMPS) had been withdrawn by the central government, and sharing repercussions of the same on planned activities, he mentioned that his government would be writing to concerned officials in GoI to extend and continue support for NMPS initiatives under the Rashtriya Krishi Vikas Yojana (RKVY).

Introduced as a visionary and missionary, Shri Sanjay Bhoosreddy, IAS, Joint Secretary (National Livestock Mission) was invited to the dais to share his opening remarks. Mr Bhoosreddy underlined the importance of small ruminants and poultry in poverty reduction and expressed concern over the declining numbers of sheep and goat at the national level. At the same time, he added, the total demand for meat and mutton was rising in the country, and there were opportunities for the producers and producers' collectives to capitalize on. Facilitating agencies and government institutions should play an active role in connecting the producers with the markets to reap in the benefits for livelihood improvement and sustainable development.

The Joint Secretary also described the *Pashu Sakhi* model of improved veterinary care at the village level, which he had witnessed first-hand at a SAPPLPP pilot project in Madhya Pradesh in 2014. Emphasizing the effectiveness of this model, including the multi-fold increase in income as well as the empowerment of women that it led to, he recommended that the model should be adopted on a large scale across the country. He ended his speech with the hope that the workshop would see fruitful discussions and produce useful recommendations for strengthening small ruminant based livelihoods.

This was followed by the inauguration of the website of SMILE – Society for Management of Information, Learning & Extension (<http://www.smileahd.org>), an independent organisation, established by the F&ARDD, Government of Odisha. Dignitaries on the dais released the training manual on “Field Performance Recording” and a publication in the Odiya language, *Ama Akhapakha*.

Delivering the key-note address, Shri Gokul Chandra Pati, IAS, Chief Secretary, Government of Odisha, summarized the issues faced by small ruminant rearers, and the economic potential of the sector. Despite being one of the most relevant subjects for poverty amelioration, small ruminants remained a neglected sector in policy making and planning. Livestock-keepers were plagued with issues of low productivity, high mortality and morbidity, and a growing inadequacy of fodder resources that limited flock development.

Mr Pati was of the opinion that enhancement in productivity of livestock up to at least 20% was possible through adoption of improved and scientific rearing practices, including feed and fodder supplementation, regular deworming and following recommended vaccination schedules. He called for undertaking implementation of robust breed conservation measures, particularly for native breeds, as the best quality animals of all breeds were being sacrificed at abattoirs. He further emphasized the importance of capacity building of rearers and encouraging entrepreneurship development among service providers and extension agents, such as goat scouts, adding that there was a scope for 15-20% return on investment for them.

Making a reference to the antiquity of integrated farming and livestock systems in the state, the Honourable Minister, Shri Pradeep Maharathy, mentioned that goat and sheep-rearing was the mainstay of the poorest families in the state, an occupation which was practiced across the length and breadth of the state, and

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

often by women. The state also boasted of several native breeds of goat and sheep, many of which were yet to be registered/recognized by the competent authorities.

The Honourable Minister extended a warm welcome to all the delegates, and wished them a pleasant stay in the state.

Following the inaugural session and before the start of the technical sessions, Ms Varsha Mehta, Team Leader, SA PPLPP made a presentation, sharing about SA PPLPP, the purpose of the regional workshop, and the recommendations from the national workshop on strengthening small ruminant based livelihoods, held at New Delhi in January 2015. A summary of the points made by her during the presentation is provided below.



About SA PPLPP: It is a programme of Food and Agriculture Organization of the UN (FAO) and National Dairy Development Board (NDDB), GoI. The objective of the Programme is to strengthen capacities and knowledge for implementing sustainable small ruminant and smallholder poultry rearing interventions based on lessons learnt from pilot interventions. The strategy adopted for achieving the Programme objective includes:

- Supporting pilot interventions for evidence-based policy advocacy
- Documentation of good practices, lessons learnt
- Networking, information sharing and facilitating multi-stakeholder dialogue

Recommendations from the National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, January 2015:

1. Role of women Community Animal Health Workers (CAHWs) is critical in last mile service delivery, and the following are required to create an enabling environment for them to function:
 - Sustained capacity building
 - Definition of scope of services to be provided by CAHWs
 - Accountability to service recipients – anchored within community institutions
 - Establishing linkage of CAHWs with local (government) veterinary hospitals
2. Standardized training curriculum for CAHWs; to be taken up under the NLM's Sub-mission on Skill Development, Technology Transfer and Extension.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

3. Creation of a window under the NLM for enabling NGO participation and submission of proposals.
4. Involvement of NGOs by PRIs for resource development (common lands, water bodies, etc.) to be highlighted in the NLM Guidelines.
5. Need for creation of a mechanism for inter-ministerial coordination of land-use planning and policy making – to be facilitated by the DADF, GoI.
6. Separate guidelines for sheep and goat based livelihood development are necessary.
7. Design of breed improvement programmes to be done in consultation with livestock keepers; focus on formation of Breeders' Associations for conservation of indigenous breeds and their genetic improvement through selection.
8. Concerted efforts of various stakeholders are required to tap available resources under CSR (Corporate Social Responsibility) for use in animal husbandry projects.
9. Inclusion of community-based livestock insurance within the framework of NLM to be explored and included.
10. Development of infrastructure and conducive policy environment for livestock trading, with scope for public-private partnerships.
11. Investment in development of social and human capital is imperative for ensuring sustainability. Programmes aimed at livelihood development must allocate adequate financial resources and time for building social and human capital.

3. SESSION I: SMALL RUMINANT POLICY AND PROGRAMMES, CHALLENGES AND SUCCESS STORIES – ODISHA AND WEST BENGAL

The first technical session of the day was chaired by Dr Kornel Das, Consultant – GALVmed. Speakers in this session included Dr G K Tripathy, Deputy Director and Dr Balaram Sahu from the Directorate of Animal Husbandry and Veterinary Sciences (AH&VS), Odisha; Mr Ajit Naik from PRADAN, Keonjhar; Ms Rashmi Mohanty from UNNAYAN, Baripada; Mr Amar Kumar Gouda, RCDC, Bolangir; Dr Arindam Samanta, Assistant Director from the Directorate of Animal Resources and Animal Health (AR&AH), West Bengal; Mr Sourav Ghosh, Development Research Communication and Services Centre (DRCSC), Kolkata; and Mr Kailash Chakraborty, Society for People's Awareness (SPAN), West Bengal.



Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

3.1 Odisha Directorate of AH&VS

Goat and sheep population:

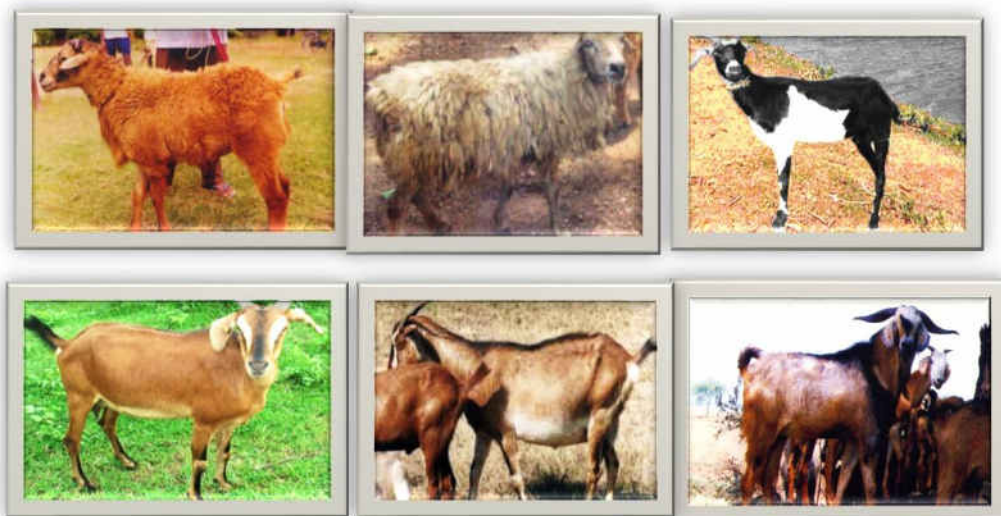
The state has 15 lakh sheep and 65 lakh goats, accounting for 7% and 32% of the total livestock population in the state, and 2.4% and 4.8% of the country's sheep and goat population respectively. Between 2003 and 2012, whereas the Compounded Annual Growth Rate (CAGR) for goat showed a slight increase (1.3%), there had been a decline in the sheep population (-0.3%).



Livelihoods based on goat

and sheep: Twelve percent households in the state are engaged in goat-rearing and 2% practice sheep-rearing, indicating scope for improvement and expansion to cater to the rising demand for goat and sheep meat.

Goat and sheep breeds: The two most popular goat breeds in the state are Ganjam and Black Bengal, the former classified as a meat breed and raised primarily in south Odisha by the Gola community in flock size of 200-300 animals, and the latter found predominantly in western and northern Odisha. Twinning is common in the Black Bengal goat, which has its first kidding at 22 months, and is usually reared in smaller numbers (5-20 per herd). Among sheep, there is the Balangir variety of meat breed found in western Odisha, Ganjam



breed in southern Odisha, and the Kendrapara breed which carries the FecB gene that results in multiple births. Other livestock genetic resources found in the state include the Koraput and Chhotanagpuri (sheep), Ghumsari, Maraguda, Rajghar and Badabhan (goats).

Livestock policy: Odisha is one of the leading states in formulation and implementation of a comprehensive pro-poor Livestock Policy, since 2002. The policy recommended selective breeding within existing native, distinctive breeds of sheep and goat for best outcomes. It identified the potential districts for sheep development as Keonjhar, Mayurbhanj, Balangir, Ganjam and Kalahandi. The potential districts for goat development were Sundargarh, Mayurbhanj, Keonjhar, Balasore, Balangir and Ganjam.

Successful interventions and results: Several successful interventions of the Directorate were recounted, and a summary of the same is presented below.

- Regular deworming of small animals under the State Plan; 14.9 lakh sheep and goat were dewormed in the previous year.
- Identification and training of goat scouts (50) under the NMPS; 67 goat clusters were formed and 2500 goats dewormed in each cluster.
- Insurance of small ruminants – 31,000 animals were insured.
- “Kalyani” being implemented in five districts of the state - Bolangir, Keonjhar, Sundergarh, Deogarh and Mayurbhanj; 25 clusters formed, 250 Field Guides trained and 1500 Groups have been formed. Activities include routine deworming, vaccination, supply of breeding buck and exchange of buck between groups, meetings and Goat Rally for raising awareness. A total of 1280 bucks have been distributed.
- Health care measures, including large scale vaccination against PPR, ET and Goat Pox (50 lakh animals vaccinated); mobile veterinary units; and routine disease surveillance.
- “*Pathe Paathshaala*” (School on the Move), for small animal livestock keepers and pastoralists, which was started in the year 2008, and is being conducted by Dr Balaram Sahu, and involves training at the place and convenience of the livestock-keepers, in their native tongue. Topics covered in the training include sustainable livestock-keeping, feed preparation from local biomass, herbal healing practices, and low-input based vaccination and deworming. So far, 523 *Pathe Pathshaala* have been organized, with participation of over 7000 livestock-keepers.





- Tele-vet programme where callers can leave a missed call which gets returned. Information on herbal healing, feed preparation and such issues is provided through this channel.
- Through departmental initiative, a separate institution focused on training and extension has been established: Society for Management of Information, Learning and Extension (SMILE), which had developed user-friendly training manuals and materials for use in the field.
- Through effective convergence with other programmes of the government, improvements in livestock-keeping have been achieved:
 - Under MGNERGS: 650 goat sheds were constructed during 2014-15
 - Under the IWMP: 1,984 health camps were organized, and 13,393 farmers provided with 57,458 animals during the last 3 years
 - Under OTELP: provision of goat sheds and training to goat-keepers for IGMP
 - Under OCTMPS: 220 deworming camps organized and 182 breeding bucks distributed in the Tank command area
- Lastly, the department has continually supported capacity-building and on-the-job learning for its veterinary staff, including para-vets, through VOTI, CIRG, CSWRI and so on.

3.2 West Bengal Directorate of Animal Resources & Animal Health

Vision: Self-sufficiency in production of milk, meat and eggs; procurement, processing & marketing of milk, meat & eggs with a reasonable price to the consumers; and employment generation.

Goat and sheep population: The state of West Bengal, with its wealth of natural resources and conducive climatic conditions, is home to 10.7 lakh sheep and 116.7 lakh goats (Livestock census, 2012).

Livelihoods based on goat and sheep: Rearing of sheep and goat is common & popular in rural areas particularly among the marginal, landless farmers & day laborers; most of the work related to livestock-keeping is primarily done by women of the household. More than 33% of the state's households are engaged in goat-rearing, and under 3% practice sheep-rearing. Small ruminants are an important tool for food security and poverty alleviation in the state.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

Goat and sheep breeds: West Bengal is the native breeding tract of the Black Bengal goat, as well as the Garole, Bonpala and Chhotanagpuri sheep. The Black Bengal goat is famous for its excellent meat quality, high fecundity and good quality of skin which fetches high prices even in the local market. The Garole sheep, on the other hand, is an exquisitely adapted animal, and an income generation resource especially for the people in the Sunderbans.



Meat production: In the year 2014-15, West Bengal recorded a production of 6.5 lakh MT of meat, with per capita availability of 18 g per day. Between 2005-06 and 2014-15, production of meat has increased by nearly 35%, and per capita availability over the same period has increased by 2 g/day, which is 64% of the recommended average requirement.

Interventions for augmenting meat production: Under the RKVY, the state allocated Rs 750 lakhs for augmenting meat production through intensive sheep/goat rearing. The interventions included selection and training of farmers (beneficiaries with at least 5 animals, 500 farmers per block, in 100 blocks across the state), awareness generation, provision for improving night shelter, regular deworming, vaccination against PPR and Goat Pox, and mineral and vitamin supplementation. It is estimated that the programme will result in annual incremental income of Rs 12,500 for the 50,000 targeted households, and increase in meat production by 8,750 tonnes. Implementation of the programme in three blocks of Bankura district was cited as an example.

Among the challenges faced in implementation of the programme, the most significant were:

- Awareness generation among the goat-keepers to adapt scientific methods for small ruminant rearing
- Dilution of genetic merit as buck exchange is not being followed
- Establishment of forward linkages for ensuring remunerative prices to the farmers

PPR Control Programme: The state had reported more than five confirmed outbreaks of PPR in four districts- Malda, Bankura, Burdwan and Howrah - in the year 2014-15. To eliminate the threat posed by PPR in small ruminants, and its socio-economic consequences, the PPR control programme is being undertaken in all districts of the state, with a vaccination target of 80 lakh doses. In addition to the departmental personnel, services of *Prani Bondhu/ Prani Mitra* are being recruited for provision of doorstep services to rearers. It is proposed that deworming tablets would be administered prior to vaccination, and there is an improvement in the service delivery system, including maintenance of cold chain; and pre and post vaccination sero-surveillance. Improved livelihoods of small ruminant livestock-keepers, and improved disease management system are some of the expected outcomes of the intervention.



3.3 Professional Assistance for Development Action (PRADAN)

The representative from PRADAN, Odisha, shared the organization's work and experience with improving goat farming practices in Kandhamahal and Keonjhar districts of Odisha.

Context: In the Kandhamahal district, where livestock-rearing is a primary source of livelihood for 25% of the households, there is high social and cultural acceptability of the occupation; between 70 and 80% of the households rear goats. The average number of goats per household is about six. The area enjoys high rainfall (1600 mm annually), and has rich vegetation growth, with 72% of the geographical area having forest cover. The goat breed found in the area is Black Bengal, known for its excellent meat quality and twinning characteristics.

The problem: Traditional goat-rearing practices did not provide adequate feed or nutrition, productivity was very low, and mortality rate quite high. Between July and December, grazing of the goats was supervised; otherwise, between January and June the herds were left to graze freely in forest areas. Apart from what the animals could graze upon in the forests, there was no provision for additional or supplementary feed, even during intense monsoon periods, when goats were unable to go out for grazing. Water for drinking purposes was generally never provided.

Strategy: A multi-pronged strategy was devised to address the issues of inadequate and improper feeding and management. Main components of the strategy were:

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

- Improved grazing system, involving formation of groups, rotational grazing responsibility among the members, identification of different grazing routes and areas for rotational grazing, and special care of pregnant and lactating does
- Collection, shade drying, and conservation of green leaves for feeding during the rainy season; a handful of water and salt is sprinkled on to the leaves at the time of feeding
- Preparation of feed supplement based on leguminous crop residues – families were encouraged to collect leguminous crop extracts from their own fields or nearby areas and feed the same to their livestock to meet their protein requirements
- Preparation of feed concentrate (*Bokashi*) using locally available resources – using a mix of grain, husk, oilcakes, jiggery and ‘*Pashu Amrit*’, a balanced feed concentrate was prepared for meeting the requirements of pregnant and lactating goats, kids and other animals in a sub-optimal state.
- Plantation of fodder trees – multi-purpose fodder trees such as *Gliricidia*, *Subabool*, etc. were planted in backyards and on other available lands to supplement green fodder availability.



Outcome: As a result of the above interventions, there has been marked improvement in the health and growth of goats and kids. Further, milk production has increased, does are attaining timely estrus, and mortality in kids has significantly reduced.



CAHWs in Keonjhar: In the Keonjhar district, PRADAN had implemented a project with support from GALVmed, which involved developing a service system through CAHWs around vaccination and de-worming and first aid services for poultry and goats. In this project, the income of CAHWs was found to range between INR 1400 – 2000 over the three-year project period, of which approximately 50% was derived from vaccination services, 33% from deworming and the rest from other advisory services and preliminary medication.

It was found that the social cost and/or energy involved in collection of service fees is sometimes the greatest challenge for CAHWs, resulting in drop-outs, and calls for a supportive fee collection system. Interestingly, the agency has concluded that the CAHW drop-out is not necessarily linked with the overall monthly or annual income, but is more a subjective assessment of time invested vis-à-vis income realization. At the same time, it was also realized that existence of a successful CAHW does not necessarily translate into better coverage, as many farmers were still by-passed even in areas under the jurisdiction of the more successful CAHW entrepreneurs. The **major challenges** faced by the implementing team and the CAHWs were in raising demand for services, and subsequently maintaining it during the disease-free periods after the outbreak was effectively addressed.

An important lesson drawn from the Keonjhar experience is that CAHWs need to cater to more than a single species – ideally, poultry and goat form a good combination, with services for poultry accounting for two-thirds of their earnings. Lastly, it was suggested that the focus needs to be on ensuring easy, affordable and sustained access to services by the livestock-keepers, rather than the sustainability of every service provider (CAHW).

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

3.4 Unnayan

Describing the goat as a poor man's cow and an insurance/buffer against shocks, the speaker from Unnayan, Mayurbhanj, highlighted the importance of goats and sheep, and lamented that there were gaps between theory and practice, between scientists and people, and that the veterinarians were not reaching the villages. The salient points from her presentation are summarized below.



Context and issues: As per the latest livestock census, there were 20 small ruminants per 100 humans in the state of Odisha, but average meat production per goat was under 9 kg, indicating scope for improvement in productivity. As an occupation, goat rearing was primarily practiced by SC, ST and OBCs, who own 90% of the animals.

Major issues in improving goat-based livelihoods pertain to availability of quality breeding bucks, total reliance on forests for fodder, and lack of information and awareness about improved health and management practices, including absence of any agency to offer skill-training for improved goat rearing and management. From an enterprise perspective, livestock-keepers are unaware of or unable to access the financial instruments and services for purchase and insurance of their stock.

Interventions: Unnayan has trained 30 tribal women PasuSathi on improved animal management; of these, 17 continue to provide services for deworming, vaccination and minor health ailments, with supportive supervision from para-vets. Six CAHWs (one woman) are catering to all small ruminant households in 100 villages in the project area. As per project norm, beneficiaries pass on the gift of a goat to other households, thus becoming benefactors themselves.

The organization is working towards establishment of a farmers' producer company, which has been named "Dulal"; it is expected that the Company will make informed marketing decisions and enable better returns to the members.

Recommendations: Based on the organization's experience with promoting livelihoods of goat-rearers, a comprehensive list of recommendations was put forth, which included the following:

- Breed development through supply of quality breeding bucks from government farms, and regular rotation of bucks between distant villages.
- Improved veterinary health services through training of CAHWs, formalization of their roles, and improved supply of medicines and vaccines, including development of cold chain and diagnostic facilities.
- Extension services to enhance awareness about IGMPs, including veterinary care, nutrition, housing and marketing.

- Improvement in feed and fodder through promoting plantation of fodder trees on available lands, training of farmers on best practices like straw enrichment, Azolla cultivation and silage making, and educating about the importance of feed supplements in the diet of pregnant does and breeding bucks.
- Marketing – development and regulation of livestock markets in rural and urban areas, facilitating weight-based sales, enhancing access to market information and supporting value chain development.



3.5 Regional Centre for Development Cooperation (RCDC)

The representative from RCDC shared the organization's experiences with and learnings from interventions in the Balangir district of western Odisha, where goat-rearing (community goat rotation) was supported as part of a food security and poverty alleviation project among the poorest families in the area.

Context: The area is characterized by high levels of poverty and migration across the border into Chhattisgarh and Maharashtra. Typically, land holdings are small, employment opportunities are few and seasonal (June to September on agriculture lands), and poorer families face food insecurity for 4-5 months in a year. The problem is worsened by lack of availability of nutritious food, and absence of assets for mortgage and other forms of financial support.

Goat-rearing as an opportunity: Goat-rearing offered just the right opportunity for the target population, considering the low demand that it made in terms of its requirement for housing, feeding and management, and its compatibility with existing occupations - agriculture, NTFP collection and fuel wood collection; goats thrive well on a variety of leaves, shrubs, bushes, kitchen

waste, etc. Other characteristics of goat-rearing which made them suitable as a choice of the landless families:

- It is a multi-purpose animal, producing meat, milk, hide, fibre and manure, and hence it has high market potentiality
- Requires low investment/capital and no equipment
- Does not require technical expertise or skills
- Goats are more tolerant to any climate (capable of adapting to various agro-climatic conditions ranging from arid dry to cold arid and hot humid)

Interventions: Citing an example of village Gunchadihi, the speaker explained that support by way of 10 goats was extended to 5 families, at a cost of INR 20,000 in the year 2010. Over time, the original beneficiaries passed on the goat-kids produced by their stock to other families in the group (a total of 19 families, 14 of them classified as ‘very poor’ and 5 as ‘poor’). Further, the community managed rotational goat support fund helped these families to be able to meet immediate food requirement.

Challenges: There is always the risk of disease and resultant morbidity/mortality. With veterinary health services being inaccessible, and insurance unheard of, the losses from disease and mortality are quite steep. If the animals survive to maturity, then returns are not always remunerative because of a lack of transparency in market transactions in the livestock sector.

Outcome: The total number of goats has increased to 88, across 19 families, and INR 256,000 has been earned from sale of 64 goats. On an average, each family has earned INR 13,000 from goat-rearing. With the increased earnings, the families were able to invest in agriculture, free their land from mortgage, afford treatment costs, construct a house, meet their social obligations, and also reduce migration.

3.6 Development Research Communication and Service Centre (DRCSC)

The representative from DRCSC shared the outcomes of the organization’s work with promoting indigenous poultry, including duck and hens, and small ruminants (rabbit and goat) rearing.

Interventions: The main intervention included purchase and distribution of hen-duck chicks, rabbits and goats to poorest households, support for rearing them, and sale. Experiences and case studies from villages in Bankura and Purulia districts were shared.

Challenges: The main challenges with poultry rearing were non-availability of chicks in the market, high mortality, and lack of services for vaccination and treatment of birds.

Outcomes: In the case of poultry, between October 2013 and April 2015 (four cycles), there was a net profit of INR 12,280, against an initial investment of INR 1,025. At the end of the period, the farmer had a stock of 41 birds, including chicks, and had sold 62 birds. In the rabbit-rearing case study from the same district, the income was INR 37,650 between July 2014 and June 2015 from the sale of rabbits, against an initial investment of INR 850. In the Black Bengal goat-rearing case study from district Purulia, starting from 1 goat and a kid in the year 2010, the herd size had risen to 19 goats in 2015; 8 animals had died and 9 were sold (13.6 % mortality) for an income of INR 17,900. From the findings presented, it was evident that net profits were highest in the case of rabbit-rearing, followed by poultry. In all cases, expenditure was minimal, making it possible for the poorest households to take up the occupation.



3.7 Society for People's Awareness (SPAN)

The speaker from SPAN highlighted the social and economic relevance of small ruminants in poverty reduction and social equity, adding that small ruminants are considered to be efficient and uncomplicated livestock in terms of their economics and management in the rural livelihood system.

Context and scope: In West Bengal, 86.5% livestock are reared by small and marginal farmers, and the landless in rural areas. Animal husbandry is one of the pillars of West Bengal's rural economy, contributing 3.9% of State Domestic Product and nearly 20.34% of its agricultural production. The gross value of output from the livestock sector at current price is INR 329.4 billion. The state has 30.35 million livestock (ranking 7th in India), of which 11.51 million are goats (4th in India); poultry population in the state is 52.84 million (5th highest in the country). West Bengal produces a third of the country's eggs and meat, but it is yet to attain self-sufficiency in egg, meat or milk production. As of now, only two-thirds of the state's requirement of meat is met from internal production.



The superior Black Bengal goat and the Garole breed of sheep, which are indigenous to the state, are highly prized for the excellent quality of their meat

and skin. West Bengal also has a vibrant leather industry which requires larger and assured supply of environmentally processed hides.

Issues and challenges: Bemoaning the absence of a comprehensive livestock policy, the speaker enlisted the following challenges in development of small ruminant based livelihoods in the state:

- Lack of awareness on the importance of small ruminants in the livelihood system
- Ineffective implementation of government schemes
- Underdeveloped infrastructure and mechanisms for livestock marketing and processing, viz., absence of automated and hygienic livestock products processing units
- Increasing pressure on fodder resource base, with decline in area and productivity of common property resources
- Inadequate and/or inaccessible veterinary health services
- Lack of access to financial services for growth and stability, viz., credit and insurance
- Lack of inter-departmental coordination

Way forward: For development of small-ruminant based livelihoods, SPAN suggested that the challenges cited above be appropriately addressed, including through:

- Development of a multi-stakeholder platform for knowledge sharing and inter-departmental coordination
- Development of a feasible and pro-poor livestock policy, with more incentives and schemes for the farmers
- Capacity building of village based organizations like SHGs, and cooperatives

4. SESSION II: SMALL RUMINANT POLICY AND PROGRAMMES, CHALLENGES AND SUCCESS STORIES – BIHAR, CHHATTISGARH AND JHARKHAND

The second technical session was chaired by Professor Dr S Das, OUAT. Senior representatives from the state directorates at Bihar and Chhattisgarh made presentations on behalf of the state, and good practices demonstrated in the states of Bihar, Chhattisgarh and Jharkhand were presented by the NGO participants. Speakers in this session included Dr Alok Ranjan Ghosh, IAS, Director - Animal Husbandry, Animal and Fisheries Resources Department (AFRD), Government of Bihar (GoB); Dr Goutam Roy, Assistant Director - Statistics and Officer-in-Charge, RKVY and IT Projects, Directorate of Veterinary Services, Chhattisgarh; Dr Dhananjay Kumar, Subject Matter Specialist, Krishi Vigyan Kendra, Nawada, Bihar; Mr Arvind Kumar Singh, Secretary, Jharkhand Goat Trust, Ranchi; Mr Mehdilal, Secretary, Margdarshak Seva Sansthan; and Mr Kashi Ram Verma, Gramodaya Kendra, Kawardha, Chhattisgarh.

4.1 Bihar Animal and Fisheries Resources Department

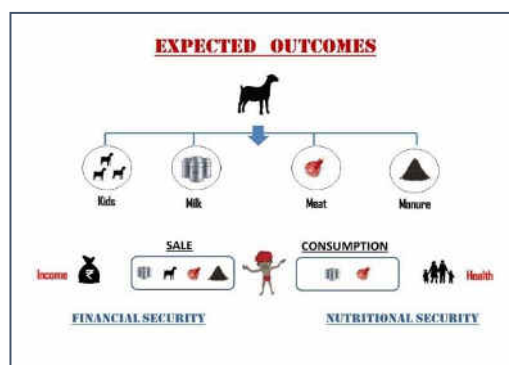
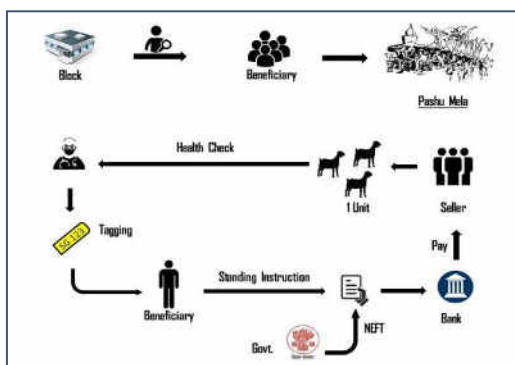
The Director, AHD from Bihar presented the various schemes of the Government of Bihar for small-ruminant based livelihood development. The main points covered in his presentation are summarized below.

Goat and sheep population: Bihar has a fairly high stocking rate, with a density of 638 goats per 1000 households; it is one of the few states which registered an increase in goat population between 2007 and 2012 – a remarkable 19.6% growth between the two consequent livestock census carried out by GoI. The state has 121.6 lakh goats and 2.4 lakh sheep, accounting for nearly 9% of the nation's goat and 3.7% of its sheep population. The state is disaster-prone, with frequent occurrences of floods and drought. In terms of milk and meat, Bihar produced 209.2 Mt milk and 83.9 Mt meat in the year 2014-15.

Goat and sheep breeds: The state has a number of recognized breeds of goat and sheep: Beetal, Jakhrana, Jamnapari, Black Bengal, and Barbari breeds of goat; and Shahabadi sheep. Other popular (and exotic) breeds of sheep which are found in the state are Rambouillet and Corridale.

Ongoing schemes of GoB: There are three ongoing schemes of the state government for integrated goat and sheep development:

- Free goat distribution
- Free buck distribution
- Strengthening of goat rearing-cum-breeding farm at Maranga, Purnea



The free goat distribution scheme has an overall outlay of INR 1331 lakhs, and aims to reach out to 11,048 SC & ST families in 4 districts of the state (Gaya, Samastipur, Katihaar and Purnea). To enhance efficiency and effectiveness of the scheme, as well as to ensure that it reaches the intended beneficiaries, several innovative measures have been incorporated in the process, including direct purchase of animals (3 breedable goats, Black Bengal breed) by the beneficiary, health check-up of purchased animals by a veterinarian, and NEFT bank transaction for transfer of payment to seller.

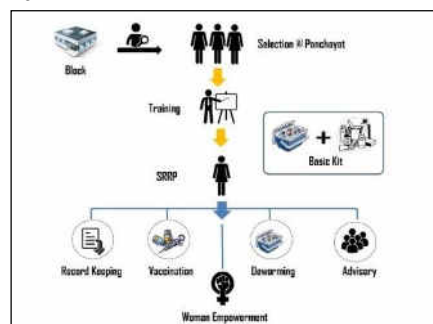
The expected outcomes of the scheme include improved financial and nutritional security, through increased availability of milk, meat, and manure.

The free buck (Black Bengal) distribution scheme, which covers 7000 Panchayats in 6 districts (Purnea, Arariya, Katihaar, Kishanganj, Gaya and Samastipur) has an overall outlay of INR 365 lakhs for the year 2014-15, and follows the same stringent procedures as in the goat distribution scheme. One breeding buck per Panchayat would be provided. Expected outcomes from the buck distribution scheme are enhanced income for farmers and breed improvement.

The government goat breeding farm at Maranga in Purnea district aims at conservation of native breeds of goats – Jakhrana, Barbari and Black Bengal, and has a total outlay of INR 120 lakhs.

There were many constraints in implementation of the above schemes, and issues that prevented achievement of the intended objectives. These were:

- Identification of right beneficiary
- Lack of quality suppliers dealing in livestock
- Low levels of awareness among the target group
- Missing market linkages
- Lack of organized slaughter houses
- Less focus on healthcare among livestock-keepers
- Lack of storage facilities
- Availability of quality fodder and feed resources in rural stretches
- Lack of adequate training



Proposed schemes of GoB: As part of the Kosi II project to be implemented with support from the World Bank in five districts of the state (Araria, Madhepura, Purnea, Saharsa, and Supaul), grant-in-aid would be provided for establishment of 500 goat breeding-cum-rearing units to families from the SC and ST categories. The objective is to achieve financial and food security through self-employment, and the proposed outlay for the scheme is INR 800 lakhs. Under the same project, it is proposed to develop a cadre of women Small Ruminant Resource Persons (one per Panchayat, in 973 Panchayats), with a proposed outlay of INR 195 lakhs.

Lastly, under the PPR-control programme of the GoI, the state has an ambitious target to vaccinate 111 lakh goats in all 38 districts of the state in the year 2015-16.

4.2 Chhattisgarh Directorate of Animal Husbandry & Veterinary Services

The Directorate representative from Chhattisgarh made a presentation on initiatives by the state government in respect of 'Policies and Programs for Development of Small Ruminant Based Livelihoods', the highlight of which was the implementation of the state-wide PPR disease control programme which is implemented in a campaign mode.

Context: The state of Chhattisgarh has 27 districts and about 20,000 villages, with a total human population of 255 lakhs (Census, 2011), consisting of 13% SC and 31% STs. Average annual rainfall in the state is nearly 1300 mm, and 46% of the state's geographical area is forested.

Goat and sheep population: Chhattisgarh has a population of 32.25 lakh goats and 1.68 lakh sheep (19th Livestock census, 2012); there has been an increase of 17% and 20% respectively since the 2007 census. Goats and sheep together constitute 22.8% of the total livestock population in the state.

Goat and sheep ownership: Of the 56.51 lakh households in the state, 12.7% (7.2 lakh households) own goats and/or sheep; most of them being landless, or small and marginal farmers.

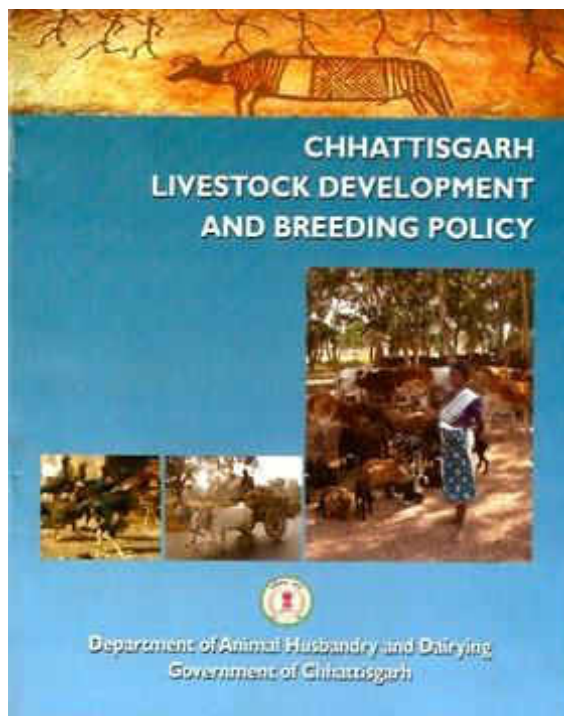
Livestock policy: The Chhattisgarh Livestock Development and Breeding Policy was formulated with assistance from CALPI, Swiss Development Corporation, and approved by the government in September 2008. The most relevant sections of the policy in regard of small ruminants are:

- Section 3.1 Subsection 1: Equip and empower the small holder farmers in small groups with appropriate skills and linkages to maximize returns from market force and reduce poverty
- Section 3.2 Subsection 2: Develop disease free zones for diseases that cause heavy losses through Mass Vaccination Programs. Control diseases that particularly affect small ruminants in smallholder situations, such as *Peste des petits ruminants* (PPR).
- Section 3.2 Subsection 13: Develop a cadre of trained para veterinary village workers, who can further train and assist livestock producers in identification of diseases, their causes of spread and preventive measures



to enable them to shed superstitions and participate in disease control programs.

- Section 3.3 Subsection 8: Utilize and conserve the sheep and goat genetic resources and effect breed improvement through selective breeding. Facilitate AI in goat using semen from superior breeding bucks.
- Section 3.6 Subsection 7: Encourage livestock owners to form 'Producers' Associations' at the grassroots level to improve their bargaining power and to enhance their capability in pre- and post-production operations.
- Section 3.11 Subsection 6: Strengthen the state public services with decentralization and private sector and NGO participation.



Ongoing programmes: The state has three programmes that contribute to small ruminant based livelihood development:

1. State Wide PPR Disease Control Program (RKVY)
2. Goat Cluster Development Program (NMPS)
3. Distribution of Male Goats for Breed Improvement (State Plan)

The **state-wide PPR disease control programme**, which is managed and implemented on the lines of the Pulse Polio campaign, has three distinct phases: Pre-vaccination, Vaccination, and Post-vaccination. It is implemented through funds from the Rashtriya Krishi VikasYojana (RKVY). Details of all the three phases are as outlined below.

Pre-vaccination phase

- Annual pre-vaccination campaign training (state and district level)
- Letters to the Sarpanch of all GPs by the Agriculture Minister of the state
- Setting up of control rooms at state and district levels.
- Mass awareness campaign by newspaper and TV advertisement
- Procurement of vaccines, ice and consumables
- Collection of serum samples of about 0.01% of unvaccinated goats 1 month before vaccination

Vaccination phase

- Mass vaccination campaign – continuously for 10-12 days.
- Wall writing for labeling households
- Daily monitoring of events through control rooms
- Vaccination at check posts (state borders)
- Vaccination at all known goat markets, farms, nomadic units and selling units
- Vaccination at villages missed out during the campaign



Post-vaccination phase

- Payment of honorarium at the rate of INR 3 per vaccination to Para-vets (*Gosevaks* / PAIWs) only, who are not under state government employment
- Collection of serum samples from districts and analysis for sero-conversion by cELISA at IVRI Mukteshwar
- Generation of data and dissemination of information

The PPR campaign has achieved impressive results, with coverage going up every year; in 2014-15, a total of 29.3 lakh vaccinations were administered, covering 81.9% of the goat and sheep population in the state. The programme is funded under RKVY and the estimated expenditure during the current year is INR 160.67 lakhs.

The **Goat Cluster Development Program** was started in the year 2012-13, with funding under the National Mission on Protein Supplementation (NMPS), and covers 50 clusters every year. The programme involves recruitment and training of **goat scouts** (*Pashudhan Mitra*), who are then equipped to provide primary veterinary care services to goat and sheep keepers in their respective clusters (approximately 2000 goats per cluster). The programme has run into a bottleneck since **funding under the NMPS Program was discontinued**; pending amount of INR 256 lakhs from the year 2014-15 has also not been released by the central government.



Distribution of male goats for breeding purposes has been a long-standing programme funded under the State Plan. In the year 2012-13, a total of 12,530 bucks were distributed in the state.

As a result of these and other interventions in the state, meat production has been registering a growth in double digits since the year 2010-11.

Under the National Livestock Mission (NLM), the state of Chhattisgarh has proposed two new programmes which are pending approval by the central government:

- Cluster-based mass deworming and health coverage program for small ruminants (sheep and goats)
- Propagation of artificial insemination biotechnology centers for high fecundity breeds (goats)

4.3 Krishi Vigyan Kendra, Gram Nirman Mandal, Nawada, Bihar

The speaker from KVK spoke about the challenges and prospects in improving small ruminant based livelihoods. He elaborated on the following topics:

- Breed conservation and improvement
- Health systems, institutional arrangements and collaborative programmes
- Feed, fodder and access to grazing lands
- Markets, value addition and facilitating access to more remunerative markets for small ruminant rearers

In conclusion, it was stated that the landless, small and marginal farmers were gradually recognizing the potential of goat and sheep as a low-cost solution to being resource poor and asset-less.

4.4 Professional Assistance for Development Action (PRADAN), Gumla

Setting the stage for the state of Jharkhand, the speaker from PRADAN, Gumla started with a description of the state context, followed by the interventions undertaken by the PRADAN team in Gumla, and ending with a discussion on outcomes, persisting issues and some ideas for the future.

Context: The state of Jharkhand has a total population of 329.9 lakhs, of which 13 and 26% belong to the SC and ST categories respectively. Seventy-six percent of the people reside in rural areas, and nearly 30% of the state's area is under forests. The state has 44% BPL population, and a high degree of malnourishment.

Goat population, meat production and consumption: Total number of goats in the state is 65.92 lakhs, accounting for 5% of the country's goat population, and a fifth of its total meat consumption. The meat deficit in the state is estimated at 33%. The productivity is however very low, and there is scope for increasing it by 30-40%.

As goats are traditionally reared for subsistence consumption on a zero-input basis, there is little interest or investment in adoption of improved practices, services, breed or feed, leading to low productivity and high mortality.



Project objective: In the year 2006-07, PRADAN initiated work with 1200 tribal families with the objective “To enhance the income of rural poor (forest dweller) families through goat rearing with improved practice and technology.” It was expected that over time, a market based system linking rearers, CSP, veterinary doctor, pharmacy and other nodes in input and output supply chain would evolve, and eventually become self-sustaining.

Issues: The main issues identified were high mortality, low productivity and poor price realization. These were further elaborated as follows:

- Subsistence mind-set with respect to rearing of goats, and therefore an unwillingness to invest in veterinary services, vaccinations, infrastructure, or commercialization of venture
- Lack of information, awareness and knowledge about improved management practices, including housing, nutrition, breeding, castration, marketing, and so forth
- Absence or inaccessibility of mainstream veterinary care services
- Unfair trading practices and lack of a developed marketing system for livestock

Project interventions: The project interventions were in four areas: management and rearing practices, veterinary care service system, breed improvement, and market linkages. The total investment per household was estimated as INR 16,000, of which 16% (INR 2,500) was beneficiary contribution (details of cost provided in Table 3.1). Goat Activity Groups (GAG) were formed, goat-keepers were trained in IGMP, rigorous implementation of improved management practices was emphasized, and weight-based price estimation of bucks for sale was facilitated through provision of weighing machines. Regular review and monitoring was facilitated at the community and the project level (within the team) to encourage learning and timely corrective measures, if required. Data collection and analysis enabled objective assessment of project impact.



Table 3.1: Cost of comprehensive project interventions for IGMP

Sl.	Item	Particulars	Cost (INR)
1	Does	5 does (local/ Black Bengal)	5,000
2	Buck	1 crossbred buck	4,000
3	Housing renovation	Shed, floor and roof	5,000
4	Fodder	Cultivation of fodder in 0.03-acre area	1,000
5	Veterinary services	Vaccination and medication	500
6	Consumables	Water tub, ropes, lime, etc.	500
7	Total		16,000

Project impact: As a result of project interventions, there were several tangible changes which were observed:

- Adult goat mortality dropped below 10% and kid mortality was recorded as under 5%; in terms of weight gain
- Kids attained 8-10 kg body weight within 90 days and 18-22 kg in a year (before project this was 10-12 kg)
- Average earnings of INR 13,000 per family for 400 families
- Para-vets trained and 21 of them continue to provide services in the area
- Replication of model by 826 families through self-contribution.



Persisting constraints and way forward: The project implementing team encountered challenges in procurement of vaccines on account of non-availability, and their viability in the absence of adequate infrastructure for maintaining cold-chains. Although mortality rates had fallen because of improved management and preventive veterinary care, encounters with wild animals continued to cause loss of life/livestock. Experiences with market interventions suggest that there is a need for establishment of people's collectives (e.g., a federation) for enhancing bargaining power and becoming a market player of substance.

4.5 Jharkhand Goat Trust

The speaker from Jharkhand Goat Trust shared his personal and organizational experiences in undertaking and promoting small ruminant based livelihoods.

The organization encountered several challenges in its work, including the lack of access to basic amenities for goat-keepers; the speaker was of the opinion that talking to goat-keepers about diagnostics and health of ruminants is futile unless there is an earnest effort to reach out to them and solve their immediate problems.

The speaker cautioned against mass administration of vaccines and tweaking with the diet and nutrition/ food habits of goats, suggesting that the effects of these on the livestock and resultant metabolic diseases need to be carefully considered. He advocated examination of traditional practices and use of herbal treatments for diseases in goats, adding that there is also a need for improving hygiene and sanitation in goat sheds.

It was concluded that removing poverty, providing access to amenities, and empowering communities with knowledge-based practices will help them in rearing small ruminants.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July 2015

4.6 Margdarshak Seva Sansthan, Chhattisgarh

The representative from MSS spoke mainly about the issues and challenges faced in remote tribal and forested areas of Chhattisgarh, where the organization was working to promote rural farm and off-farm livelihoods. The following were cited as the major bottlenecks:

- Shrinkage of grazing lands and their diversion for other uses, including plantation of *Jatropha* on grazing lands by and through government programmes
- Fencing and closure of forest areas by the forest department; imposition of restriction on grazing in forest areas
- Inadequacy of infrastructure, and lack of hygiene and sanitation facilities
- Insurance – it was difficult to insure, and even more difficult to obtain compensation against death of insured animals (finding a Surveyor in remote rural areas is a challenge)
- Lack of coordination, cooperation and convergence

4.7 Gramodaya Kendra, Chhattisgarh

Deeply concerned over the loss of forests and grazing areas in Chhattisgarh, the speaker from Gramodaya Kendra shared about his organization's work in promoting goat-based livelihoods. They were trying to regularize veterinary health services, experimenting with *Azolla* as a feed additive, and raising multi-purpose tree species for fodder and other purposes. He was of the opinion that the increased numbers of goat and sheep in the state of Chhattisgarh were on account of the presence of migratory herds from Rajasthan and Gujarat in the state. With disappearance of common resources for grazing, it was important for goat-keepers to find alternatives and attain self-sufficiency in meeting their fodder requirements.

5. SESSION III: SUB-GROUP DISCUSSION AND PRESENTATIONS

To enable meaningful participation of all stakeholders, and obtain specific recommendations for improvement of goat and sheep-based livelihoods, the post-lunch session was devoted to discussions in four smaller groups, on topics of disease management, fodder and nutrition management, housing and hygiene requirement for small ruminants, and conservation of indigenous breeds. Following discussion in smaller groups, presentations were made by group representatives.

The session was chaired by Mr Alok Ranjan Ghosh, IAS, Director-AH and Joint Secretary, AFRD, Bihar, Dr Arindam Samant, Assistant Director, AR&AH, West Bengal, and Dr Debi Prasad Panda, Director, F&ARD Department, Odisha.

A topic-wise summary of the group presentations is provided in the following paragraphs. Issues and suggestions made during open house discussions in the earlier sessions have also been incorporated below. Presentations for Groups I to V were made by Dr Balaram Sahu, Dr P K Pattnaik, Dr Girish Kar, Dr S N Panda and Dr G K Tripathy/ Mr Birendra Kumar Mandal respectively.

5.1 Group I: Disease Management

In its presentation on the topic of disease management in small ruminants, the group which deliberated on issues, challenges and recommendations for disease management, the following were summarized as the main issues and challenges:

- Lack of awareness among goat-keepers on the importance of appropriate sanitary requirements, vaccination, and deworming
- Absence of necessary investigation and diagnostic facilities with presence of qualified experts
- Lack of infrastructure and facilities to maintain the cold chain during transportation and storage of vaccines
- Loss of biodiversity, resulting in emergence of new diseases
- Lack of vaccination for certain diseases in small ruminants, viz., CCPP& blue tongue
- Movement of animals across state boundaries and transfer of disease by migrating herds

The group put forth some recommendations to address the challenges and manage better disease control:

- Development of a (localized) calendar for vaccination and deworming in accordance with the local situation and prevalence of disease/s
- PPR & Goat pox vaccination campaign to be undertaken along the lines of polio vaccination and eradication (for a duration of 15 days)
- Availability of vaccines in smaller doses; 20 dose vial should be available
- Development and implementation of a robust inter-state quarantine system (role of central government)
- Revival of traditional knowledge systems and their dissemination
- Establishment of an animal health mission dedicated to the prevention and control of animal diseases
- Collaborative approach between GO, NGO, and CVO for effective disease control; a mechanism for meeting/convergence of these stakeholders on a quarterly basis to be put in place

5.2 Group II: Fodder and Nutrition Management

Several delegates had raised the important issue of grazing lands and availability of fodder for small ruminants in the course of the discussions during previous sessions. Keeping in view these concerns and considerations, the group discussing fodder and nutrition management took a holistic view of the issue of fodder and nutrition management. Lack of attention to and awareness about balanced nutrition and feeding for livestock was cited as the other issue, in addition to the ones raised before. The following were the recommendations of the group:

- Policy interventions are required at the highest level to resolve the issue of grazing lands and availability of other areas for grazing livestock, especially goats and sheep
- Develop systems of rotational grazing, giving adequate time for regeneration and optimal utilization of available lands
- Promote plantation of fodder-yielding trees in forest fringe and other areas

- During capacity-building of goat-keepers, include a topic on balanced nutrition and importance of feed supplements, especially for pregnant and lactating goats
- Support establishment of community-owned and managed fodder banks
- Training of lead farmers in preparation of balanced concentrates from locally available resources
- Support initiatives for Azolla cultivation and encourage its replication

5.3 Group III: Housing and Hygiene Requirements

The group deliberating on the topic of housing and hygiene in small ruminant rearing enlisted the following as the main issues:

- Insufficiency of floor space in night shelters
- For small, marginal and landless farmers, availability of space for goat shed is often a major constraint
- In the case of pregnant and lactating does, or for diseased animals, the need for separation of animals from the herd, and/or their isolation
- Inappropriate, inadequate or missing systems for drainage and ventilation
- Lack of financial resources with the primary stakeholders, and lack of investment in the sector
- Lack of awareness among farmers regarding appropriate hygiene and sanitation

Stating that there were opportunities in terms of availability of bio-resources (e.g., bamboo), relatively inexpensive labour, and a plethora of government schemes (e.g., NREGS, NLM, TWC, etc.), the group made the following suggestions:

- To explore the possibility of including an additional 100 sqft area under the Indira Awas Yojana (housing scheme of GoI)
- All concerned agencies and individuals to facilitate convergence with MGNREGS, to expand support under the scheme for construction of goat shelters; to include in the design an elevated platform made of bamboo or other locally available material
- To explore possibility of NGOs, of SHG federations supporting implementation of schemes for IGMP, including for housing
- To document and disseminate information about low-cost and animal-friendly goat-housing; to set up demonstration models wherever feasible
- To undertake and/or support programmes for raising awareness among livestock-keepers on the importance of housing for enhanced returns from goat rearing.

5.4 Group IV: Conservation of Indigenous Breeds

With animal genetic experts among its members, the group presenting recommendations for conservation of indigenous breeds had some very interesting opinions and observations. It stated that the prospects of a breed depend on its utilization only, which has to be monitored by the government for effective conservation of the breed, and which will provide the impetus for evolving better/more productive animals in future.

For conservation and management of indigenous breeds, the following strategies were suggested:

- Identification and evaluation of all available animal genetic resources
- Breed description and characterization to explain their unique qualities and potential contributions
- Prioritizing the breed for conservation based on their population structure, economic utility and genetic diversity
- Establishment of breed societies for conservation of breeds
- Creation of database on indigenous animal genetic resources
- Formulation of a separate breeding policy for small ruminants, including selective breeding and cross-breeding of non-descript animals

There was a specific set of recommendations for conservation, including in-situ and ex-situ measures, with the responsibility to act being assigned to the government and Breeders Societies/ Associations:

- Premium pricing for breed animals
- Offering of incentives to farmers for conservation of breed

5.5 Group V: Marketing of Small Ruminants; Value Addition Prospects

It was generally agreed that marketing and value-addition was the need of the day, but also the most challenging link in the entire system. The group which discussed marketing of small ruminants, identified the following as the major issues and challenges:

- Producer does not get a fair share of the market price which is paid by the consumer
- Meat available to the consumer is not always certified for quality
- Under-developed markets with little or no infrastructure
- Livestock sales are based on a visual estimate of the animal's live weight and carcass weight, leading to wide variations between the price offered and expected

The group also had a set of recommendations:

- To enable establishment of market yards and facilitate direct sales by producers
- Wide and free dissemination of livestock market information among producers, traders, and buyers/end users
- Promotion of a system based on gradation of animal and weightment
- Setting up rural abattoirs for higher price realization for the rearers and hygienic meat for the consumers
- Establishment of food safety laboratories at the district level, and certification of meat for value-addition
- Farmers portals are not helping as they cannot be accessed by small farmers in rural areas; kiosks are what is required
- Can we have state-level cooperatives for livestock

Proceedings of Regional Workshop on Strengthening Small Ruminant Based Livelihoods, August 2015, Bengaluru



1. INTRODUCTION AND OBJECTIVES

In the series of regional consultations being held across the country, the southern India regional workshop on ‘Strengthening Small Ruminant Based Livelihoods’ was held at Bengaluru on 31st August, 2015.

The workshop was organized by the Karnataka Sheep and Wool Development Corporation (KSWDC), the Animal Husbandry and Veterinary Services (AH&VS) Department, Karnataka, and Foundation for Ecological Security (FES), Regional Office-Madanapalle (AP), with facilitative support from the Department of Animal Husbandry, Dairying and Fisheries (DADF), Government of India (GoI), and the South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), New Delhi.

South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of FAO of the UN and National Dairy Development Board (NDDB), India, and the DADF, Ministry of Agriculture, GoI, had organized a national workshop on “Strengthening Small Ruminant Based Livelihoods” at New Delhi on January 16-17, 2015, and following up on the recommendations of this national workshop, regional (multi-state) workshops were being facilitated in different parts of the country, to enable greater participation, and highlight the importance of small ruminants as a pathway out of poverty. The workshop at Bengaluru saw participation of delegates from government and non-government sectors in the five southern states – Karnataka, Andhra Pradesh, Telangana, Kerala and Tamil Nadu, as well as members of the Rainfed Livestock Network (RLN) from around the country. A list of all participants at the workshop is placed at Annexure 2-D.

The **objectives** of the regional workshop were:

- To develop a common understanding among government, non-government and civil society stakeholders regarding current status of policies and programmes for small ruminants, and livelihoods based on sheep and goats in the southern states of the country.
- To share demonstrated best practices in goat- and sheep-based livelihood improvement, and discuss their potential for scaling up.
- To identify issues and constraints in promotion and/or development of small ruminant based livelihoods, based on experiences in the region.
- To facilitate establishment of linkages and institutional collaboration between and among participating stakeholders for small ruminant-based livelihoods development.

2. INAUGURAL SESSION

The workshop was formally inaugurated by Shri T B Jayachandra, Honourable Minister for Animal Husbandry, Government of Karnataka (GoK) following a lamp-lighting ceremony by the dignitaries. Present on the occasion, along with the Honourable Minister, were Shri Sanjay Bhoosreddy, Joint Secretary (Administration and National Livestock Mission), DADF, GoI; Dr N S Channappa Gowda, Secretary Animal Husbandry and Fisheries, GoK; Shri Pandithrao Chhidri, Chairman KSWDC; Shri S Shekhar, Commissioner, AH&VS, GoK; and Dr Sayeed Ahmed, Director, AH&VS, GoK, and other senior delegates from the neighbouring states.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

The keynote address was delivered by Shri T B Jayachandra, Cabinet Minister, Government of Karnataka, who holds the charge for three ministries including Animal Husbandry. The other two ministries in charge of Shri Jayachandra are 'Law, justice and human rights' and 'Parliamentary affairs and legislation'. In his address, the Minister underscored the importance of the animal husbandry as integral to rural livelihoods, particularly alongside agriculture and crop cultivation. He was of the opinion that rearing of small ruminants was an effective alternative for coping with the problem of recurring droughts in the state, where approximately 10 lakh people were engaged in the profession.

The minister shared that the state government was committed to supporting these households, by providing them with scientific inputs and creating the infrastructure necessary to enable small ruminant keepers practice their livelihood. Alluding to the nation-wide problem of shortage of qualified technical expertise in veterinary hospitals, he said that steps were being taken by the state government in order to address the issue in Karnataka. Dwelling on some of the plans and proposals, the minister stated that the budgetary allocation for the department of AH&VS had been increased in the state, and efforts were ongoing to leverage more resources from central government programmes like RKVY (Rashtriya Krishi Vikas Yojana); a proposal had also been sanctioned for establishment of a modern rural abattoir in the PPP mode. Further, he suggested establishment of a meat corporation focused exclusively on small ruminants for development of the sector.

The Joint Secretary (ANLM), DADF, GoI, Mr Sanjay Bhoosreddy welcomed all participants on behalf of the organizers, and thanked the government of Karnataka, particularly the KSWDC and the department of AH&VS, for hosting the workshop for the southern region in India. He hoped that the day's deliberations would provide greater insight into issues for small ruminant development, and bring in a regional perspective in policy formulation around small ruminants.

Following the inaugural session and before the start of the technical sessions, Ms Varsha Mehta, Team Leader, SA PPLPP made a presentation, sharing about SA PPLPP, the purpose of the regional workshop, and the recommendations from the national workshop on strengthening small ruminant based livelihoods, held at New Delhi in January 2015.

SA PPLPP is a programme of Food and Agriculture Organization of the UN (FAO) and the National Dairy Development Board (NDDB), GoI. Its objective is to strengthen capacities and knowledge for implementing sustainable small ruminant and smallholder poultry rearing interventions based on lessons learned from pilot interventions.

The idea and need for regional consultations had come up in the National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, January 2015, which was jointly organized by DADF, GoI and SA PPLPP. So far, two regional consultations had been completed – at Jaipur (with participation of Gujarat and Rajasthan) in May 2015, and Bhubaneswar (with Odisha, West Bengal, Chhattisgarh, Jharkhand and Bihar as participating states) in July 2015. *Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015*

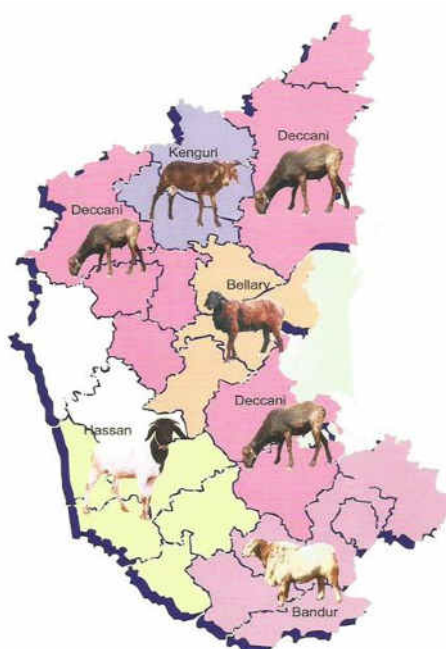
The recommendations from the national workshop were presented, and are as placed at Annexure 3.

3. SMALL RUMINANT POLICY AND PROGRAMMES – PRESENTATIONS BY STATE ANIMAL HUSBANDRY DEPARTMENTS

All the five participating states - Karnataka, Andhra Pradesh, Telangana, Kerala and Tamil Nadu - presented details of their policy and programmes on small ruminants and livelihoods based on them. A summary of the presentations follows.

3.1 Karnataka Directorate of AH&VS

The small ruminant policy and programmes for the state of Karnataka were presented by Dr T Sreenivasa Reddy, Deputy Director, AH&VS. In his presentation, Dr Reddy stated that Karnataka had the second highest population of sheep and goats in the country, with sheep and goat rearing being an important livelihood activity for a large number of small and marginal farmers. Among the breeds of sheep found in Karnataka were five native breeds, which included Deccani, Bellary, Bannur (Bandur), Hassan and Kenguri.



3.1.1 Population and production

Whereas the overall sheep and goat population in the state had declined significantly between 2007 and 2012, by 8.5%, there had been a marginal increase in the sheep population (0.2%). The numbers of sheep and goats in the state are as shown in Table 4.1.

Table 4.1: Sheep and goat population in Karnataka (1990 – 2012) (numbers in lakh)

Sl.	Year	Sheep	Goat	Total
1	1990	47.27	38.89	86.16
2	1997	80.03	48.75	128.78
3	2003	72.72	44.91	117.64
4	2007	95.66	61.57	157.23
5	2012	95.84	47.96	143.80
6	% variation (2012) over the	0.19	-22.10	-8.54

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

Between 2008-09 and 2013-14, the meat and production scenario in the state has not been very promising, although wool production has been more or less consistent, as evident from the percent share of sheep and goat meat in total estimated meat produced in the state (Table 4.2). With the sharp decline in number of goats in the state between 2007 and 2012, the corresponding reduction in share of meat from ovine sources is expected.



In terms of institutional support and infrastructure, the state of Karnataka has 4212 veterinary institutions, with disease diagnostic laboratories at each district center. Under the Rashtriya Krishi Vikas Yojana (RKVY), the state has established 18 Mobile Clinics exclusively for sheep and goats. Services provided include regular preventive veterinary care, treatment, extension services and implementation of programmes aimed at socio-economic development of small ruminant rearers.

Table 4.2: Estimated production of wool and sheep & goat meat in Karnataka (2008-09 to 2013-14)

Year	Wool (’000 kg)	Meat production (’000 tonnes)		Ovine meat as percent of total meat produced
		Total	Sheep & goat	
2008-09	7137	114.5	59.3	52
2009-10	7165	119.2	66.0	55
2010-11	7179	123.8	68.6	55
2011-12	7779	139.6	67.6	48
2012-13	8020	166.1	59.8	36
2013-14	7755	170.0	50.3	30

Source: DADF, 2015, GoI

3.1.2 Breeding policy

The state’s breeding policy for small ruminants is aimed at increasing productivity and conservation of native breeds. The following are intended to be accomplished and attempted:

- Increase productivity of sheep and goats
- Conserve and improve native breeds
- Undertake characterization and recognition of new breeds
- Implement measures for genetic upgradation of non-descript breeds
- Popularize stall-fed sheep production systems
- Establish nucleus farms for supply of germplasm to breeders

3.1.3 Preventive veterinary services

The AH&VS department has a planned programme for containment and prevention of four infectious diseases of economic importance: Haemorrhagic Septicaemia (HS), Enterotoxaemia (ET), Anthrax and *Peste des petits ruminants*

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

(PPR). The coverage and time-period for undertaking vaccination for the said diseases is as indicated in Table 4.3.

Table 4.3: Disease control in small ruminants through vaccination programmes

Sl.	Disease	Vaccination coverage area	Period of vaccination
1	Haemorrhagic Septicaemia	17 endemic districts	May and Nov
2	Enterotoxaemia	All districts	June and Dec
3	Anthrax	In identified endemic cluster of villages	January
4	PPR [#]	All districts (1/3 rd of population)	May and Nov

[#]For PPR control programme, 100% of the goat and sheep population is covered in the first round; subsequently, 1/3rd population is targeted twice yearly

Control of PPR is given high importance, with a lot of emphasis on publicity generation for ensuring widest possible outreach. The 'team and cluster approach' is adopted in its implementation, which includes the following:

- Formation of vaccination teams
- Formation of clusters (5,788)
- Proper care taken for cold chain maintenance and timely supply of vaccine, and other logistics
- Systematic vaccination reporting

The outcome of the PPR control programme has been extremely encouraging, with no reported outbreak or death in the year 2015-16. The year-wise achievement and results are as indicated in Table 4.4. In addition, mass deworming is conducted twice every year.

Table 4.4: Number of vaccinations carried out under PPR Control Programme in Karnataka (2011-12 to 2015-16)

Year	Vaccination (lakhs)	Outbreaks (number)	Death (number)	Remarks
2011-12	130	3	8	Fewer outbreaks than
2012-13	28	9	43	Programme not taken up
2013-14	183	2	8	Fewer outbreaks than before
2014-15	46	1	4	Fewer outbreaks than before
2015-16	35	0	0	(None until the time of the workshop; August 2015)

3.1.4 Programmes for strengthening small ruminant based livelihoods

The AH&VS department as well as KSWDC are implementing a few programmes aimed at benefiting sheep and goat farmers. These include the following

- Induction of sheep and goats at 25% subsidy (maximum INR 12,500 per unit) for 3,200 units, under RKVY
- Induction of sheep & goats at 50% subsidy to beneficiaries from Scheduled Caste (SC) or Scheduled Tribe (ST), and 25% subsidy to others for 5,190 beneficiaries, under *Pashu Bhagya* scheme of GoK
- Providing improved variety of breeding rams to shepherds at subsidized rates
- Providing ex-gratia of INR 5,000 per sheep or goat in the event of death of the animal (INR 5.89 crores in 2014-15).

To strengthen of shepherds' collectives, Sheep and Wool Producers' Co-operative Societies are being established in the state, with each Society having 15,000 – 25,000 sheep and goats. At the time of the presentation, 300 such Societies had already been established. A one-time grant of INR 500,000 was being provided to each Society for strengthening the marketing network. For sheep farmers, trainings were also being organized on scientific rearing practices, value addition through processing, and machine shearing of wool.



Other initiatives undertaken by the state in the area of goat and sheep-based livelihood improvement included:

- Artificial insemination (AI) in goats, which included training of veterinarians, supply of semen, and support for procurement of AI equipment; this had been started in 100 veterinary institutions
- Procurement and distribution of NARI Suvarna rams to introduce twinning gene (FecB) in local sheep; the project was being implemented in one Taluk each of four districts - Tumkur, Belgaum, Chitradurga and Chikkaballapura

With assistance from the Central Wool Development Board (CWDB), Jodhpur, the state is also implementing the following schemes:

- Kendriya Bhed Palak Bima Yojana- Shiksha Sahayog Yojana (4,303 beneficiaries)
- Sheep & Wool Improvement Scheme (SWIS)
- Procurement & marketing of raw wool
- Establishment of Common Facility Centre at Ranebennur in Haveri district for value addition to wool



3.1.5 Challenges in improving goat and sheep based livelihoods

The following areas and concerns were cited as challenges in providing necessary assistance to goat and sheep farmers for increasing returns from goat and sheep rearing:

1. Marketing of produce: As per the “Sheep and Goat Marketing Reforms Committee 2015”, it had been established that sheep farmers were being exploited by middle men because of unscientific and non-transparent marketing practices lacking systematic method for price fixation, with livestock markets operating out of open shanties, market yards and villages
2. Shrinking of grazing lands: With expansion of agriculture, encroachment and other factors such as rainfall, the area and availability of biomass from common grazing lands was shrinking
3. Low genetic makeup because of historical factors and unscientific management practices, including inbreeding
4. Migratory system of rearing, making department personnel’s access to farmers difficult, and continuous engagement even more so
5. Lack of modern abattoirs, resulting in loss of valuable by-products, poor price realization for producers, and lack of hygiene in meat production practices

3.1.6 Strengthening goat and sheep-based livelihoods in the state

In order to address the above-stated challenges, the following measures were being undertaken/ recommended:

1. For improved price discovery, co-operative societies would facilitate marketing of produce
2. Scientific marketing facility would be supported by installation of modern electronic ‘weighing machines’ at the APMCs (under RKVY), and live weight of animal to be approximately 50% of the market price of mutton
3. To address the issue of decreased fodder availability from grazing lands, the system of semi-intensive management was being recommended, with stall feeding and partial grazing; in addition, plantation of fodder trees was also suggested



4. To improve genetic makeup of animals, the state has already been supporting programmes for distribution of rams and started AI in goats
5. Establishment of rural abattoirs, and establishing direct linkages between farmers' cooperative societies and the abattoirs; this would also avoid entry of animals into cities and their transportation over long distances to reach terminal markets, encourage rural entrepreneurship, reduce urban pollution, and benefit both producers (who will obtain fair prices) and consumers (who will get hygienic and good quality meat)
6. A fully mechanized small ruminant abattoir was being established (under PPP mode) at Cheelanahalli village in Sira Taluk, district Tumkur, at an estimated cost of INR 26.5 crores, and a processing capacity of 1,500 sheep and goats per day.

3.2 Andhra Pradesh Animal Husbandry Department

Andhra Pradesh (AP) had recently formulated a small ruminant development policy (in 2015), the contours of which were shared by Dr G Somasekharam, Additional Director Planning, and Dr K S V L Prasad, Assistant Director, Animal Husbandry Department (AHD), Government of Andhra Pradesh (GoAP).

3.2.1 AP Small Ruminant Development Policy, 2015

Developed through a multi-stakeholder consultative process, the state government's small ruminant development policy was a first of its kind in the state.

Vision: To make Andhra Pradesh a prominent mutton producing state in the country through sustainable growth in the small ruminant sector

Mission: The policy mission is stated as follows:

- Replacement of breeding rams in the existing flocks in a phased manner
- Encourage entrepreneurship development in sheep rearing and ram lamb rearing
- Interventions for better reproductive efficiency and realizing productivity potential
- Encourage semi-intensive rearing of sheep
- Assist farmers for creating shelter facilities
- Shepherd training on better breeding, feeding and management practices
- Creation of marketing infrastructure at village level like weighing units
- Projects in PPP for development of small ruminants

The policy outcomes expected are:

- Increase in mutton production and per capita consumption
- Improved veterinary care for small ruminants, control of inbreeding, reduction in lamb mortality, possibility of check on migration during lean season, and improved returns to rearers through institution of sales on live weight basis
- Establishment of demonstration models for intensive system of rearing
- Availability of hygienic quality meat to consumers

- Value addition to meat could offer potential for export to other states and countries

3.2.2 Sheep and goat population and production in AP

After division of erstwhile AP into Telangana and the new AP, approximately 51% of the small ruminants of the former state remained in AP. Of these, nearly 57% are found in the four districts of what is known as the Rayalaseema region, comprising Ananthapur, Chittoor, Kadappa and Kurnool. The region-wise distribution of goats and sheep in the state is shown in Table 4.5.

Table 4.5: Regional distribution of goat and sheep population in AP

Sl.	Region	No. of districts	Sheep population	Goat population	Population as percent of total
1	North Coastal	3	1,250,779	710,075	10.9
2	South Coastal	3	3,079,638	970,914	22.4
3	Coastal	3	1,191,593	636,537	10.1
4	Rayalaseema	4	8,037,812	2,178,000	56.6
5	Total in AP	13	13,559,822	4,495,526	100.0

AP has the highest sheep population of all states in the country, and an estimated 300,000 households engaged in small ruminant rearing. Annual meat production in the state is 530,000 metric tonnes (Mt), contributing INR 1200 crores to the Gross State Domestic Product (GSDP).

In terms of recognized indigenous breeds, AP has the famous Nellore breed of sheep, which is the tallest of all sheep breeds found in India, and is available in three varieties: Jodipi, Brown and Palla, depending on the colour of the sheep. Other sheep breeds found in the state are Deccani (in Kurnool), Bellari (in Ananthapur and Kurnool) and Macherla (in Guntur). There are no recognized goat breeds in the state.

3.2.3 Opportunities and constraints

The opportunities identified for promotion of small ruminants based livelihoods are mostly concerned with rising demand for goat and sheep meat, driven mainly by consumer preferences and purchasing power. Other opportunities specific to sheep and goat meat included:

- Short gestation periods and high prolificacy in small ruminants; low investment livelihood option for resource-poor farmers
- Climate smart fodder security policy in the state, and availability of large extent of fallow lands
- Presence of climate resilient breeds in the state
- Presence of extensive cooperative networks
- Conducive market and policy developments, including SEZ for leather industry in Nellore

Although there were many opportunities for small ruminant based livelihood development, there were also several constraints which hindered growth and

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

development of the sector, and most of these may be clubbed under two heads: issues affecting productivity and market issues. The following were listed out as the major constraints:

Productivity-linked issues: high incidence of inbreeding, shrinkage of grazing lands, stress on account of migration, inadequate coverage of veterinary services, and inadequate research and development

Market-linked issues: slaughter at early age and at low live weights, overwhelming control of markets by middlemen, preference of consumers for 'wet' (fresh) meat, inadequate market infrastructure and a weak cooperative system

Policy issues: inadequate policy support for meat processing units, export-oriented units and credit linkages.

3.2.4 Policy and fiscal incentives

In order to address the constraints mentioned above, and to capitalize on the identified opportunities, the state government had chalked out an elaborate and ambitious subsidy-driven programme, incorporating initiatives aimed at strengthening the sector, details of which are provided in the following paragraphs.

Breed improvement: To check inbreeding and improve genetic makeup of sheep and goats in the state, initiatives were planned to check inbreeding, and encourage production of superior quality rams and bucks, involving FPOs and registered farms, through the following means:

- Support for Ram/buck exchange events
- Provision of cash incentive of INR 1,000 per breeding buck/ram, and transport incentive of INR 1000/500 per ram/buck
- Provision of incentive for insurance coverage for two years
- Procurement of rams at 18 months' age on live-weight basis, and their distribution to farmers at 50% subsidy
- Promotion of small ruminant rearing farms for production of breeding bucks
- Production of rams/ bucks in government farms through PPP mode
- Support for care of pregnant ewe/doe in identified flocks in villages where production of breeding rams is planned; 75% subsidy on feed inputs and 100% subsidy on health care in the last two months of pregnancy

Fodder production and supply: To enhance fodder production in the state, 100% grant would be provided for improvement of common property resources (CPRs) in accordance with the state government's fodder security policy. Further, feed mixing plants would be established with provision of a revolving fund for their operation.

To check migration from drought-affected areas, provisions of the fodder security policy would again be invoked, for supply of dry fodder at INR 3 per kg and concentrate feed at INR 4 per kg.

Improved access to veterinary services: Training would be provided by the government (100% subsidy) to shepherds and *Avika Bandhus* (Community Animal Health Workers) sponsored by the community, with free provision of medicines and vaccines as preventive measures to check incidence of diseases. *Avika Bandhus* would also be supported by way of provision of a mobile phone and a monthly rental package.



For improved disease control in small animals, community managed risk management system would be adopted, and 2/3rd matching contribution provided to the FPO corpus fund for the purpose.

Strengthening producers' collectives: To strengthen producer groups, Farmer Producer Organizations (FPOs) would be formed through business incubation centers, with financial assistance from NABARD, GoI, or the state government. For the same purpose, existing Sheep Societies would also be strengthened by way of financial assistance for animal shows (100%) at the state, district and block levels, including costs involved in transportation and other logistics; infrastructure support for sheep service centers (sheep dips, foot baths, drinking water troughs, and bore wells); and lastly, allotment of government-owned wasteland up to 5 acres/ Society.

Direct support to producers: In a bid to reach out to producers by way of direct support for adoption of improved practices, the following measures were suggested:

- 100% support for construction of drinking water troughs through MGNREGS funds
- Support for construction of shelters (75% subsidy, maximum INR 30,000), with additional subsidy (maximum INR 20,000 for construction of elevated platforms), and dovetailing with MGNREGS

Distribution of sheep/goat units and ram lamb units would be through welfare organizations, with subsidy as per the scheme guidelines. In the event of loss on account of natural calamity, compensation of INR 2,500 per animal would be provided, up to a maximum of 10,000 (4 animals) per farmer.

Promoting intensive/ commercial

enterprise: For farmers willing to establish sheep/goat farms of 100-500 animal capacities, incentive by way of subvention of interest (7%) on credit for five years would be provided, up to a maximum of INR 10 lakhs per unit. Further, producers with 100 sheep/ goat units, with own land or on lease, could avail of 75% subsidy (up to a maximum of INR 75,000) on construction of shed, and 50% subsidy on complete feed mixing unit with chaffer and grinder; support for 100 units would be provided every year.



Market and infrastructure development: A slew of measures have been identified for developing livestock markets and processing facilities for livestock products. These include the following:

- 100% grant for establishment and strengthening of sheep market yards (existing or new)
- Viability Gap Funding of 20% each by GoI and GoAP for promotion of terminal market yards for livestock
- Capital and interest subsidy on establishment of meat processing units
- Support for construction of modern slaughter houses in urban areas as per GoI provisions, and rural abattoirs at 50% subsidy to entrepreneurs, and with involvement of local bodies
- Support to entrepreneurs for establishment of mobile meat marketing outlets in urban and semi-urban areas, with 50% subsidy, up to a maximum of INR 10 lakhs
- Provision of infrastructure support under RIDF (Rural Infrastructure Development Fund) for district Small Ruminant Development Centers, with once Assistant Director level officer posted to look after small ruminant development activities in the district.

Other: Some of the other initiatives planned and proposed by GoAP included:

- Establishment of a sheep research station at Banvasi (in Kurnool district) at an estimated cost of INR 30 crores
- Development of model villages by GoAP (at 100% subsidy) for demonstration of best practices in small ruminant rearing
- Support to NGOs to promote service centers for livestock/ small ruminants
- Institution of rewards in various categories at the state and district levels for recognition of 'best farmer', 'best FPO', 'best village' and 'best NGO'; INR 50 lakhs proposed per year for the purpose

3.3 Telangana Animal Husbandry Department (TAHD) and Telangana State Sheep and Goat Development Cooperative Federation (TSSGDCF)

The state of Telangana was formed in June 2014, after the reorganization of erstwhile Andhra Pradesh, and while it had inherited many of the issues, options, institutions and opportunities which were formerly a part of AP alone, some new organizations and structures had also been established after formation of the new state. Making the presentation on behalf of Telangana, Dr Y Thirupathaiah, Managing Director - TSSGDCF, shared that the TSSGDCF was registered under the AP Cooperative Societies Act, 1964, in August 2014. The following are the activities of TSSGDCF:



- To implement all central and state government schemes related to sheep and goat development
- To extend financial assistance for purchase of sheep/ goat units by getting funds from different funding agencies like NCDC, NABARD, GOI, CWDB, etc.
- To distribute elite breeding rams produced in the government farms, to the members of the federation to increase breed potentiality and to avoid inbreeding
- To develop fodder in the lands belonging to members, community, government and other leased land to augment fodder resources and bridge the deficit
- To establish silage pits at individual, Society and union levels and also in farms
- To facilitate and provide reasonable sales price for small ruminants (sheep) by establishing sheep market yards at strategic locations
- To create awareness among members about improved practices for profitable sheep farming
- To develop & strengthen the viable sheep cooperatives in the state

3.3.1 Sheep and goat population in Telangana

The state has ten districts, including Hyderabad, with a total small ruminant population of 175.5 lakhs, of which 128.75 lakhs (73.4%) are sheep and 46.75 lakhs (26.6%) are goats (district-wise small ruminant population as provided in Table 4.6. An estimated 5.12 lakh households are engaged in small ruminant rearing.

Table 4.6: District-wise population of goat and sheep in Telangana

Sl.	District	Sheep population	Goat population	Total sheep & goat population	Population as percent of total in the state
1	Mahbubnagar	3,730,689	687,066	4,417,755	25.2
2	Ranga Reddy	674,239	462,395	2,438,889	13.9
3	Medak	1,072,380	573,931	2,196,197	12.5
4	Nizamabad	920,548	477,681	2,051,152	11.7
5	Adilabad	695,125	588,340	164,6311	9.4
6	Karimnagar	1,641,547	409,605	1,398,229	8.0
7	Warangal	1,749,429	446,768	1,283,465	7.3
8	Khammam	486,073	495,818	1,136,634	6.5
9	Nalgonda	1,905,189	533,700	981,891	5.6
10	Total in Telangana	12,875,219	4,675,304	17,550,523	100.0

3.3.2 Sheep Breeders' Cooperative Societies

TSSGDCF, which is a three-tiered institution with units at the village, district and state levels, is the implementing agency for various schemes relating to sheep & goat development activities in the state. The federation consists of 3,658 Primary Sheep Breeders' Cooperative Societies (PSBCS), clustered under nine District Sheep Breeders' Cooperative Societies (DSCBS). The state-level federation is therefore a conglomerate body of PSBCS and DSBCS.

Of the 3,658 PSBCS in the state, 25% are in Mahbubnagar district, which also has the highest small ruminant population in the state. In terms of membership, 224,457 members are enrolled in these bodies, of which 99% belong to the 'Backward Class' social category, underscoring the fact that sheep-rearing is practiced almost entirely by traditional pastoral communities that belong to the Kuruma/ Kuruba caste.

3.3.3 Sheep and goat-based livelihood development programmes implemented by TSSGDCF and AHD, Telangana

Programmes aimed at livelihood improvement of goat and sheep rearers are implemented by both, the TSSGDCF and the AHD, Telangana, as described in the following section. The schemes and programmes implemented by the TSSGDCF fall under four categories, based on source of funding:

1. State Plan Schemes
2. Schemes of the Central Wool Development Board (CWDB), GOI
3. Assistance received from the National Cooperative Development Corporation (NCDC), GoI
4. Other TSSGDCF schemes

Details of the various interventions undertaken by the agency, as part of the schemes mentioned above, are provided in the following paragraphs.

Sheep Insurance Scheme: The Sheep Insurance Scheme is being implemented under the State Plan; under the scheme, lambs between 4 and 12 months' age are assured for a sum of INR 1,500 and insured at 7% premium (INR 120), of which 2/3rd is contributed by the government. Likewise, adult sheep (1-7 years) are insured for an assured sum of INR 3,000 at 7% premium, with 1/3rd contribution from owner and 2/3rd from the government. In the year 2015-16, a budget of INR 8.2 million (82 lakhs) had been released under the scheme, and by the time of the workshop (August 2015), a total of 58,571 sheep had been insured.

CWDB-supported schemes: The CWDB, GoI has sanctioned a sum of INR 4.6 million (46 lakhs) as grant-in-aid to the state for the implementation of two schemes – Sheep and Wool Improvement Scheme (SWIS) and Social Security Scheme, also known as the *Bhed Palak Bima Yojana*.

- The SWIS is being implemented in four districts – Medak, Nizamabad, Nalgonda and Warangal – and 200,000 sheep have been covered under it for health care, with the objective of improving body weight and quality of wool.
- The *Bhed Palak Bima Yojana* is an insurance scheme meant for sheep breeders (male and female) in the age group 18-59 years, which entitles them to compensation of INR 60,000 in the event of natural death, INR 75,000 in case of partial disability, and INR 150,000 in case of accidental death or permanent disability; the premium amount is INR 330, of which INR 80 is expected to be contributed by the insured. The scheme further provides a nominal financial assistance for educational support of the children of the insured, for standard 9th to 12th, at INR 100 per month for each child. Under this scheme, 8,803 shepherds in nine districts of the state were insured.

NCDC-supported small ruminant development project in Mahbubnagar: The TSSGDCF has obtained approval from NCDC for a 3-year small ruminant development project in Mahbubnagar district for an amount of INR 64.73 crores, of which 60% is loan, 20% provided as subsidy and 20% is expected to be beneficiary contribution. Of the total amount sanctioned, INR 18.4 crores has been released for the first year. In terms of progress and results, INR 15.2 crores of the fund released has been utilized for grounding of a total of 1,596 sheep units covering 120 PSBCS in the district, as indicated in Table 4.7.

Table 4.7: Progress under NCDC Scheme in Mahbubnagar district

Sl.	Particulars of intervention	Number of units grounded
1	Sheep rearing units (20+1)	1478
2	Sheep breeding units (50+2)	68
3	Sheep breeding units (100+5)	14
4	Sheep breeding units (500+25)	5
5	Ram lamb units	31

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

In addition to the above-mentioned ongoing project in Mahbubnagar district, the TSSGDCF has also submitted a proposal along similar lines for implementation in the remaining 8 districts of the state, for a total amount of INR 398.87 crores.

The various schemes and programmes implemented by the Telangana AHD for goat and sheep-based livelihood development are as mentioned below, with a summary of each provided in the following paragraphs:

1. Mass sheep and goat deworming programme
2. Distribution of goat and sheep mini-units (5+1)
3. Establishment of intensive/semi-intensive goat and sheep farms (100+5) on pilot basis
4. Establishment of model goat and sheep farm for demonstration and training
5. Establishment of sheep market yards

Mass deworming of sheep and goats: To reduce worm load in small ruminants, boost their immunity, and increase productivity, mass deworming of sheep and goats is proposed to be carried out in the state, in three rounds, covering 175.5 lakh animals; an allocation of INR 1,200 lakhs has been made for the purpose using Plan and RKVY funds.

Sheep and goat mini-unit distribution scheme: Under the scheme, the proposal is to distribute 3,225 units (5 does/ewes + 1 buck/ram) of goats/ sheep, for which a sum of INR 483.8 lakhs has been allocated; the estimated cost of each unit is INR 30,000, of which 50% would be provided as subsidy. It is anticipated that beneficiary households would earn an additional income of INR 50,000 per annum; in addition, their nutritional status will improve and meat production in the state would increase.

Promotion of sheep/goat enterprises: To promote commercial goat and sheep farm enterprises under the intensive/ semi-intensive system, a credit-linked project with a 25% subsidy component and 75% bank loan, has been launched for rural entrepreneurs, who may also avail of the benefits of the scheme in groups of 2-5. The estimated cost per unit (100 ewes/does + 5 rams/ bucks) is INR 10 lakhs, and 64 units have been proposed. Apart from the income returns to the entrepreneurs, expected benefits include increased production of meat, in addition to popularization of goat/sheep rearing in the intensive/semi-intensive mode. A sum of INR 160 lakhs has been allocated to take care of the subsidy component of the scheme.

Establishment of a farm and training center: At Mamidipally in Ranga Reddy district, land available with the AHD is proposed to be developed as a model goat and sheep farm, with 1,000 female and 100 male sheep/goat, for purposes of demonstration and training. The total financial outlay of the project is INR 275 lakhs, of which 83% (INR 227.66 lakhs) is for infrastructure, including civil works and equipment. Following are the stated objectives of the center:

- To impart training on latest advances in sheep / goat production and best utilization of the resources
- To transfer improved technologies on sheep production to farmers, and entrepreneurs
- To supply breeding rams, ewe lambs, ram lambs, bucks, and does to the shepherds
- To encourage farmers to sustain in drought conditions by providing improved varieties of feed and fodder
- To assist the shepherds in addressing management issues, including lamb mortality, and problems related with hygiene
- To conduct training/ demonstration programmes for shepherds on intensive and semi-intensive management systems, and to popularize modern management practices in sheep/ goat farming. It is expected that 5,000 shepherds will receive training every year at the Center.

Market yards: Lastly, to develop livestock market infrastructure, the AHD proposes to develop sheep and goat market yards at strategic locations in selected districts, with the objective of enhancing returns to rearers and offering greater number of options to buyers. The design for the market yard would be similar to the one developed by NABCONS, for sheep market yards established in Nalgonda and Medak districts with RKVY funds in 2008-09. Other value-added services, such as training of sheep and goat farmers, extension services, and opportunity for popularization of departmental schemes, are also proposed to be taken up at these market places.

3.4 Tamil Nadu Department of Animal Husbandry, Dairying and Fisheries

Making the presentation on behalf of the Animal Husbandry Directorate, department of AHD&F, Tamil Nadu (TN), Dr L Anandha Padhmanabhan, Additional Director (Veterinary Services), shared the situation with respect to small ruminants in the state, elaborating on the programmes undertaken by the Government of TN, and issues and challenges confronting development of small ruminant based livelihoods.

3.4.1 Small ruminant population and contribution to GSDP

The total livestock population in the state is 227.21 lakhs, of which 57% are small ruminants (47.87 lakhs sheep and 81.43 lakhs goats). In the year 2014-15, the gross value of output of livestock in the state was INR 55,068.2 cores, constituting 4.3% of the GSDP and 41.8% of the agriculture and allied sector. The state produced 4.92 lakh Mt of meat during 2014-15, which came mainly from small ruminants and poultry.

3.4.2 Small ruminant breeding policy

There are 9 recognized breed of sheep (Madras Red, Melcher, Coimbatore, Tricky Black, Ramnad White, Vembur, Kilakaraisal, Nilgiri, and Chevadu) and one recognized goat breed (Kanniadu) in TN; other goat breeds found in the state are Kodiadu and Salem Black.

The state has a breeding policy for small ruminants, and its focus is on the conservation and propagation of native germplasm. While the policy propagates selective breeding of indigenous breeds in their native tract, and discourages farmers from practicing crossbreeding in sheep, it also suggests up-gradation of non-descript goats with Tellicherry and/or Boer. Further, recognizing the crucial role of farmers in breed conservation, the policy proposes conservation of threatened breeds for posterity by forming farmers' groups.

3.4.3 Small ruminant development programmes in TN

Apart from a massive programme for free distribution of goat/sheep units under the state budget, the AH&VS department is implementing central government schemes, including under RKVY, National Mission for Protein Supplementation (NMPS), Integrated Development of Small Ruminants and Rabbits (IDSRR), and the National Livestock Mission (NLM). Progress and results obtained under each of the abovementioned interventions are outlined in the following paragraphs.

Distribution of sheep/goat units to women: The free distribution of goats and sheep scheme was launched in the year 2011, with the objective of providing sustainable livelihoods opportunities to the poorest women in the state. Against a target of 7 lakh beneficiaries/ units for distribution, a total of 550,000 units have been distributed so far, with INR 729.5 crores allocated for the purpose. In the year 2014-15, the budget for the scheme was INR 196.78 crores, covering 150,000 Gram Panchayats and 150,000 beneficiaries. The salient features of the scheme are as under:

- Only women beneficiaries are eligible, and selected by the Gram Sabha as per pre-defined criteria and norms; preference is given to destitute widows, transgender and deserted women
- 30% reservation for SC and ST categories
- Proportionate coverage of all the districts and blocks in the state
- Each unit consists of 4 goats/ sheep (3 F + 1 M) of about 6 months' age; INR 2,500 per goat/sheep, INR 500 per goat for shed, and INR 150 per unit towards transportation cost is provided to the beneficiary (total INR 12,650 per unit)

In order to increase effectiveness of the scheme, enhance returns to producers, and ensure sustainability of benefits, a range of supportive measures have been put in place, involving an array of agencies and departments. These supportive measures include the following:

- Formation of village level committees and convening of Gram Sabha for timely selection of eligible beneficiaries; villages are selected by the AH&VS department; meetings convened by the Rural Development department wherein AH&VS officials explain the details of the scheme; and overall responsibility for implementation of the scheme rests with the District Collector
- Funds disbursement is done in a timely and transparent manner, and beneficiary is involved in the purchase process which is transparent and open
- Insurance of the animals is undertaken at government cost in the first year, and done on the spot at the time of purchase of animals

- Training of beneficiaries in improved animal management practices (IAMP), and issuance of health card for record-keeping; complemented by weekly/ monthly follow-up visits to ensure reproductive and general health, handholding support, and organization of health camps for disease prevention and stress tolerance
- Priority in receiving support under the 'goat shelter construction scheme'
- Livestock owners incentivized for adoption of best management practices



With regular monitoring and consistent support pre- and post-purchase of animals, the outcomes of the free distribution scheme have been impressive; of the 22 lakh goats/sheep provided to 5.5 lakh beneficiaries, 35.31 lakh kids and lambs have been born, whose estimated worth is INR 883 crores. The additional income earned from sale of lambs/kids by each beneficiary is estimated by the department as up to INR 1,500-2,000 per month.

Construction of goat shelters: Recognizing the resource constraints faced by smallholder livestock-keepers in providing appropriate housing for animals, the state is supporting construction of goat shelters using resources allocated under MGNREGS. The area of each shed is 132 square feet, and cost of construction is INR 85,000; in the year 2014-15, 10,000 beneficiaries were provided benefit of the scheme at a cost of INR 85 crores.

Breed improvement under National Agriculture Development Programme: Under this programme, the proposal is to purchase around 700 sheep and goat of superior quality for raising on government farms, at an outlay of INR 70.18 lakhs, with the objective of distribution of offspring among farmers for breeding purposes.

National Mission for Protein Supplementation (NMPS): Under the central government funded NMPS, goat units (9F + 1M) are distributed among women SHG members (8 members in a group with an interest in goat-rearing) on a 100% subsidy basis. In addition, support is provided by way of low-cost housing for goats, training of beneficiaries, insurance of animals purchased, transportation costs, health cover, dewormers, mineral supplements, and concentrate feed at 250 gm per goat for a period of three months. Lastly, each group is provided with a

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

weighing machine to monitor progress; the idea is for the beneficiaries to be sensitized to the effect of supplements and concentrate feed on weight gain in goats, and to continue the practice even after withdrawal of support.

The NMPS was implemented for three years from 2011-12 to 2013-14, with financial outlays of INR 250 lakhs, 450 lakhs and 505.5 lakhs respectively. During the period, a total of 2,700 beneficiaries were covered – 540 in the first year, and 1,080 each in the second and third years.



Integrated Development of Small Ruminants and Rabbits (IDSRR): With the objective of development of sheep for mutton and wool, and goats for meat and milk, the IDSRR provides assistance for establishment of goat farms in the government and non-government sectors for entrepreneurship development and technology infusion. The roles of the agencies involved in the scheme are:

- NABARD: responsible for credit linkage
- AHD: information dissemination about the scheme, provision of training, and consultation
- NGOs: community mobilization and group formation, training in collaboration with AHD, facilitate bank operations, including sanction of loans to the group, input supply facilitation, and marketing support

In the years 2013-14 and 2014-15, loans under IDSRR were extended to 908 and 4,576 groups, with financials of INR 200 lakhs and 672 lakhs respectively.

Insurance coverage under NLM: Although insurance coverage was only for cattle in the previous years, goats and sheep have also been proposed for inclusion from the current financial year. It was envisaged to cover 1.6 lakh cattle units under the scheme in the current year, including all kinds of livestock; preference would be given to beneficiaries of the free goat/sheep distribution scheme for insurance coverage in the second year (first year insurance covered under the scheme). Ten numbers of goats and sheep are counted as one cattle unit as per the GoI guidelines.

Fodder development: Towards enhancing fodder availability for the increasing livestock population in the state, measures such as the following were undertaken:

- Distribution of Sesbania (*Agathi*) seedlings to farmers through departmental farms; in the year 2013-14, number of seedlings distributed was 30 lakhs, and the financial outlay for the purpose was INR 83.3 lakhs
- Plantation of Sesbania was undertaken under SFDS in the year 2014-15; a total of 5,000 acres were planted at a cost of INR 48 lakhs (INR 960/acre)
- In the current year (2015-16), distribution of 2 lakh seedlings of various tree fodder species is proposed to be undertaken against an outlay of INR 28.9 lakhs

- 18,000 units of Azolla have already been established in the state at a cost of INR 261.25 lakhs; an additional 10,000 units proposed to be established in 2015-16 at a cost of INR 160 lakhs
- 145,000 acres have been brought under fodder cultivation under various schemes; an estimated 101.6 lakh Mt of fodder produced therefrom (700.7 quintals/acre)
- Other: 7,397 rain guns (long-range sprinklers) and 11,239 chaff cutters have been provided to farmers

Health cover for small ruminants: Both state and central government funds are utilized for provision of veterinary care to sheep and goat farmers; the interventions undertaken in this regard are as follows:

- Deworming at intervals of three months provided to sheep and goat farmers at the doorstep, under Intensive Health Cover programme; INR 100 lakhs expended on the programme in the year 2014-15
- 5,000 veterinary health camps organized annually under the Livestock Protection Programme (*Kalnadal Padukappu Thittam*); INR 231 lakhs earmarked for the programme during the current year
- Vaccination carried out under ASCAD and PPR-CP of the central government schemes; diseases covered include PPR, Anthrax, Sheep Pox and ET. In the year 2014-15, the numbers of small ruminants vaccinated against these diseases are as follows:
 - Anthrax – 27.86 lakhs
 - Sheep Pox – 1.5 lakhs
 - PPR – 47 lakhs

3.5 Kerala Department of Animal Husbandry

The state of Kerala, smallest of the five in south India, was represented by Dr K K Jayaraj, Additional Director, Department of Animal Husbandry, Kerala. His presentation focused on the opportunities and challenges in goat-rearing in the state, characteristics of the important breeds found there, and interventions supported by the state in the sub-sector. He also shared that commercial production of PPR vaccine had been successfully launched in the state, at the Institute of Animal Health and Veterinary Biologicals under the AHD. At the same time, progress was also being made for the launch of production of vaccines for Enterotoxaemia. To promote goat-rearing in a big way, constitution of a Goat Development Board is also under consideration in the state.

3.5.1 Opportunities and challenges

Among the opportunities identified for goat-rearing in the state, are: good market price and high demand; low investment as compared with dairy; possibility of rearing by women and children; and lastly, high and rising demand for by-products, such as goat urine and milk, from the Ayurvedic medicine industry which is quite advanced and widespread in the state.

Decreasing availability of land, resulting from urbanization and other factors was cited as a major challenge, coupled with shortage of fodder, and low availability of grazing land. The fact that goat-rearing cannot provide daily income as dairy, is also recognized as a challenge in its promotion.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

3.5.2 Goat population in Kerala

The state of Kerala, because of its agro-ecological characteristics, does not have a significant sheep population, unlike the other states in the southern region of India. Its goat density too is lower than the national average, with a total goat population of 12.5 lakhs in the year 2012 (32 goats per sq km, against the national average of 41 per sq km). Given the high demand and the declining availability of fodder resources, the state saw a sharp fall of 28% in its goat population, between the two consecutive livestock census of 2007 and 2012. There are two recognized breeds of goats found in the state – Malabari and Attapady Black. The district-wise population of goats in Kerala is as shown in Table 4.8.



Table 4.8: District-wise population of goats in Kerala

Sl.	District	Goat population (number)
1	Alappuzha	55,158
2	Ernakulam	123,538
3	Idukki	98,503
4	Kannur	56,445
5	Kasargod	33,757
6	Kollam	111,342
7	Kottayam	94,297
8	Kozhikode	43,962
9	Malappuram	137,718
10	Palakkad	113,031
11	Pathanamthitta	51,066
12	Thiruvananthapuram	163,980
13	Thrissur	128,130
14	Wayanad	35,150
	Total in Kerala	1,246,077

3.5.3 Goat development initiatives in Kerala

At present, departmental initiatives for development of goat-rearing in the state are quite low-key, with the focus being on goat farms, breeding units, and promotion of artificial insemination (AI) in goats; details of the said initiatives are provided below.

Goat farms: There are three government goat farms at Komeri in Kannur district, Attapady in Palakkad district, and Parassala in Thiruvananthapuram district. Four more farms are proposed to be established with the objective of conservation of indigenous germplasm, and supply of good quality goats/bucks to farmers.

Satellite breeding units: With the aim to establish small goat breeding units (goat nurseries) at the Panchayat level for propagation of the indigenous Malabari breed, the government proposes to establish goat satellite breeding units, with each unit comprising 5 does and one buck in the 4-6 months' age group. The financial outlay for the proposed scheme is INR 179 lakhs, and 716 units at a cost of INR 25,000 each would be established; beneficiary contribution of INR 25,000 (50% of total) is also expected. Cost details of the scheme are as indicated in Table 4.9.

Table 4.9: Cost break-up of goat satellite breeding units

Sl.	Item	Unit cost (INR)	Amount (INR)	Remarks/ Source
1	5 does + 1 buck	5,000	30,000	25,000 to be provided by the AHD
2	Shed construction (100 sqft)	100 per sqft	10,000	Beneficiary
3	Transportation, insurance, documentation, etc.	3,000 lump sum	3,000	Beneficiary
4	Feed and fodder (for 3 months)	77 per day	7,000	Beneficiary
5	Total		50,000	50% from AHD

Promoting artificial insemination in goats: Given the shortage of good quality bucks for breeding purposes, efforts at promoting AI in goats are afoot in the state, being implemented through 520 AI centers, using Malabari buck semen; at current capacity, 40,000 AI services are being provided per annum, and a conception rate of 45% has been observed. The department aims to establish 500 additional AI centers by the following year.

4. PRESENTATIONS BY RAINFED LIVESTOCK NETWORK (RLN) ON RESEARCH FINDINGS AND GOOD PRACTICES IN THE SECTOR

The Rainfed Livestock Network is a consortium of non-government organizations working in the livestock and natural resource management sectors, and is anchored by the Foundation for Ecological Security (FES), partner facilitating agency for the regional workshop at Bengaluru. RLN was formed in 2008 in response to the need for a common platform that facilitated knowledge-sharing among various stakeholders in the livestock ecosystem. Its partner organizations come from around the country, and the presentations which follow were made by them.

4.1 Improving Animal Health Services – A Farmers’ Perspective

Ms Bhavana Rao, Regional Manager, Watershed Organisation Trust (WOTR), shared the findings from a multi-state study conducted collaboratively by RLN partner organisations (FES, SEVA, MARAG and WOTR) in five rain-fed regions across the country, with the objective of understanding and quantifying the losses suffered by farmers due to mortality from diseases in livestock, availability of and access to veterinary services. Data for the study was collected through household surveys, focused group discussions (FGD) and disease mapping exercises with livestock keepers. The estimation of economic losses was computed using equations from published scientific literature. The findings pertaining to the two southern states (Telangana and Tamil Nadu), which formed a part of the study, were shared with the participants, which generated much interest and discussion.

4.1.1 Study sites

The study covered five states – Rajasthan, Gujarat, Tamil Nadu, Telangana and Maharashtra – and all animal categories. The location of the sites and other relevant details of the study area and sample size in the two southern Indian states are provided in Table 4.10. In terms of social composition of small ruminant rearing households in the sample, the study found that all the sheep-rearing households in Telangana belonged to the ‘Other Backward Classes’ (OBC), whereas the goat rearers were mainly from the Scheduled Caste (SC) category, followed by OBC. In Tamil Nadu, both SCs and OBCs were found to be rearing small ruminants, and 80% of the SC households were landless.

Table 4.10: Location of study sites in Telangana and Tamil Nadu and sample size

Sl.	State	Location of study	Sample size (no.)		Small-ruminant rearers (no.)
			Villages	Households	
1	Telangana	Thalakondapalli Block, Mahbubnagar district	5	138	40
2	Tamil Nadu	Dharapuram Block, Tiruppur district	8	140	40

4.1.2 Losses due to mortality and morbidity in small ruminants

Mean mortality loss per animal in sheep was estimated as INR 3,257 per animal and in goats INR 3,738 per animal. In Telangana, nearly 100% of the households reported losses on account of mortality in goats and sheep; the average estimated loss per household for goat-rearing households was INR 21,680 and for sheep-rearing households it was INR 51,135. Similarly, losses from mortality were also estimated for small-ruminant rearing households in Tamil Nadu; whereas the average loss per goat-rearing household was INR 15,700, the losses from sheep-rearing were estimated as INR 15,959 per household.

The quantum of loss on account of mortality is higher in the state of Telangana on account of both, higher percent mortality as well as bigger flock sizes. At the same time, whereas incidence of reported morbidity was lower in Tamil Nadu, it was found to be higher in Telangana, both in adults as well as the young ones. Details of mortality and morbidity by type of animal in both the states are provided in Table 4.11.

One of the study observations, which is a cause of public health concern, is that livestock owners were prone to selling sick animals to avoid incurring higher losses in case of death of the animal. While this resulted in lower returns to rearers, it also posed serious health risks to consumers of the product.

Table 4.11: Flock sizes, mortality and morbidity losses on account of disease in Telangana and Tamil Nadu

Type of animal	Mortality & morbidity by age and sex of animal in the two states					
	Telangana			Tamil Nadu		
	Stock size (2013-14)	Mortality percent	Morbidity percent	Stock size (2013-14)	Mortality percent	Morbidity percent
Goats - total	697	--	--	451	--	--
Bucks - adult	24	12.5	16.7	22	13.6	0.0
Does - adult	277	20.9	13.0	195	16.9	4.1
Kids - male	196	15.8	17.3	128	15.6	5.5
Kids - female	200	14.0	15.0	106	14.2	6.6
Sheep - total	2626	--	--	794	--	--
Rams - adult	52	1.9	25.0	18	11.1	11.1
Ewes - adult	1453	11.2	14.8	444	14.6	5.0
Lambs - male	513	11.3	17.5	174	17.2	6.9
Lambs - female	608	17.1	19.1	158	16.5	3.2

4.1.3 Availability of veterinary services to livestock-keepers

At both the study locations, the source of veterinary services for livestock-keepers across all categories was private practitioners, including Chemists and *Gopal Mitra*/ para-vets. In the absence of adequate and accessible veterinary services, many of the livestock-keepers resorted to self-medication of animals on the basis of symptoms, following recommendations of local chemists; it was also found that animals were being treated without proper diagnosis, and the same drugs were being used across a host of diseases.

On the part of the animal husbandry department, which is the mainstream institution for provision of veterinary services, there were major constraints on the part of the officials, who were burdened with responsibilities of a non-technical nature, viz., census, election duty, special campaigns, and so on, as well as a serious shortfall in the numbers of qualified personnel available vis-à-vis number of posts sanctioned. Table 4.12 provides details of the number of veterinary institutions and personnel in the study locations vis-à-vis the livestock population. The ratio of technical personnel vis-à-vis livestock population is far from favourable and needs immediate attention for improvement of veterinary care services.

Table 4.12: Ratio of technical veterinary staff vis-à-vis area and livestock population

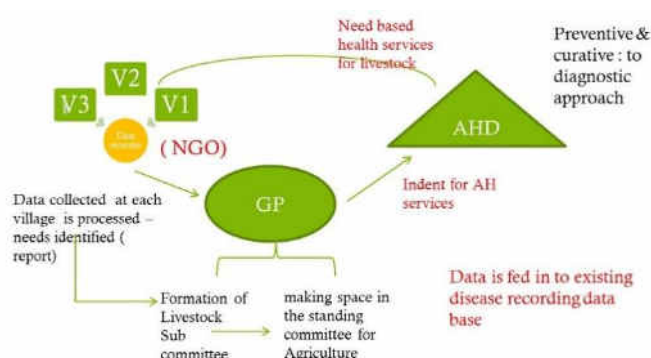
Sl.	District/ Block	Number of veterinary institutions	Number of technical persons employed	Total number of villages (2011 census)	Livestock population (2007 census)
1	Mahbubnagar district, Telangana	344	490	1475	6,135,783
2	Thalakondapalli Block	6	7	29	56,584
3	Tiruppur district, TN	121 (7 hospitals, 45 dispensaries, 69 Sub-centers)	123	350	917,689
4	Dharapuram Block	8 (1 hospital, 3 dispensaries, 4 Sub-centers)	48	71	83,675

4.1.4 Key recommendations

Based on the study findings and observations, the following key recommendations were put forward:

- To strengthen doorstep veterinary services for livestock-keepers through “mobile van units”
- To equip block and district level veterinary hospitals and dispensaries with adequate and appropriate diagnostic facilities and equipment

- Policy-level recognition of the inter-linkages between livestock and agriculture, and linking development of CPRs with interventions in the livestock sector
- Government to support and take the lead in primary service of disease recording and reporting; the system was found to be absent in all study sites (recommended system as shown in figure below)
- Prioritization of investments in the sector to cater to the improved delivery of veterinary services and strengthening of existing system



4.2 Small Ruminant Markets

Dr Nitya S Ghotge from Anthra, shared and discussed the findings of a study as part of a pilot carried out by RLN partner organisations in Karnataka, Andhra Pradesh and Tamil Nadu on livestock markets, raising pertinent questions on the issue in the context of farmers' livelihoods and public health, and made a few recommendations on areas requiring further research as well as priority intervention areas for facilitating optimal returns to farmers.

4.2.1 Livestock markets and areas of concern

Across the country, there are some 2,000 livestock markets that deal with the sale of live animals, but there is a lack of definitive information on livestock-dependent livelihoods, value and supply chains for livestock and related products, and other issues pertaining to quality of the produce obtained from livestock. There are also issues and concerns of animal welfare, with respect to their transportation, slaughter, and so on; in Andhra Pradesh for instance, it was found that animals from as far as MP and Rajasthan are transported to Hyderabad livestock markets. Further, the lack of infrastructure in livestock markets was quite appalling.

The study also found that the markets as they are currently run increase the risk of the spread of diseases like PPR, Sheep Pox and Foot and Mouth Disease (FMD), as sick animals enter the market without any checks at entry/ exit points.

4.2.2 Farmer behaviour and changing market dynamics

The study indicated that the shepherds did not usually confine themselves to a single market, but visited different markets in order to get the best price possible for their animals; it was found that livestock keepers get about 65 - 70% of the final sale price of the animal; what is implied here is that while there is less scope for ensuring a greater share of the final sale price to the livestock keeper, more

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August 2015

needs to be done in order to ensure that animals of a superior quality enter the market. With increasing demand for meat, and lack of profitability in wool, shepherds are shifting to meat breeds, and selling their animals at a relatively young age. If sold at the appropriate time, farmers obtained up to 70% of the final sale price, exclusions being:

- Distress sales: when animals had to be sold suddenly due to high morbidity in flocks
- Stress sales: when shepherd were in financial distress and urgently needed to liquidate their livestock assets
- Panic sales: when disease epidemics were prevalent

The study concluded that there are well-planned systems and links with many intermediaries, connecting the shepherds and their produce with urban markets and consumers. It was found that modern super markets and retailers also depend on these links as their source of animals for meat.

4.2.3 Key recommendations

Based on the study, the following recommendations have been propositioned:

- Mapping of livestock markets and, flows of produce and different markets across the country
- Study of laws governing animal care, age of slaughter, transport, permissible medication, certification, etc.
- Pilot testing an ideal market with drinking water troughs for animals and drinking water facilities for the humans attending them. In addition, shelters for protecting animals from inclement weather, etc.
- Monitoring and/or screening of animals entering the market for disease prevalence
- Comparison of price trends of milk, mutton, poultry, and poultry products
- Tracing value chain and identifying fresh areas for support/intervention
- Impact of free trade and other bilateral agreements on livestock sales, trade and products needs to be studied and understood
- Studying informal markets, value chains, and livelihoods dependent on these value chains

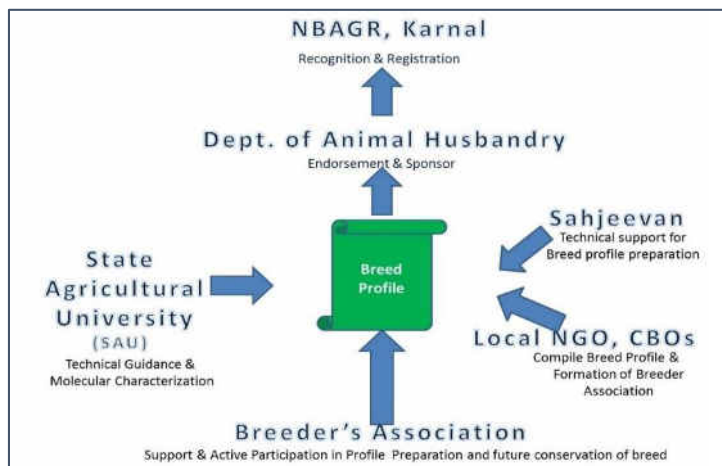
4.3 Identification, documentation and recognition of lesser known breeds

Mr Ramesh Bhatti from Sahjeevan, an organisation based in the Kutch district of Gujarat and working with pastoral communities, spoke about the importance of conservation of native breeds, sharing examples about breeds registered, and the procedure involved in their recognition as distinct breeds.

4.3.1 Importance and revival of local animal genetic resources

Characterization and inventory of farm animal genetic resources (AnGR) is a strategic priority area under the National Plan for Management of Animal Genetic Resources; he mentioned that of the total livestock population in the country, only 30% is characterized as belonging to distinct breeds (151), whereas the remaining 70% continue to be referred to as non-descript, although many of these animals carry valuable native germplasm.

Through joint efforts of Sahjeevan, State Agriculture University, AHD and the local Breeders' Association, the Banni buffalo was recognized by the National Bureau of Animal Genetic Resources (NBAGR) as the 11th buffalo breed in the country, and the first to be recognized since India's independence. The actors involved in the process, and their respective roles, are as summarized in the figure below.



As part of the RLN Pilot, a multi-stakeholder approach has been adopted for breed recognition; its objectives are as under:

- Recognize the role of pastoral communities in the conservation, development, and protection of animal breeds, through appropriate documentation and registration of indigenous breeds.
- Highlight the importance of indigenous breeds in particular agro-ecological set up.
- Advocacy on revisiting current breeding schemes, and their amendment, in order to shift the focus to pastoral communities and in-situ conservation.
- Develop collective working mechanism for State Department of AH, SAUs, NBAGR, NGOs and breeders' association for in-situ breed conservation and breed registration.
- Fund allocation from state and central governments for field and laboratory based work for breed characterization and in-situ breed conservation.

4.3.2 Government of Gujarat initiative for recognition of native breeds

The state government of Gujarat, through the AHD and in collaboration with NGOs and technical resource providers, launched a project for the characterization and registration of lesser known breeds in the state, with the following objectives:

- To bring out the physical and genetic characteristics of such breeds by undertaking studies of lesser known and non-descript livestock breeds of Gujarat

- To study adaptability of such domestic animals with local environmental conditions as also breeders' relationship with the respective breeds, and also to study conservation methods.
- To prepare breed profile and application for **those breeds** which emerge as distinct from other registered breeds.
- To formulate policies for identification, conservation, sustainable usage and development of domestic animals as per global plan of action as issued by FAO.
- Organizing breeders' communities towards breeders' association for conservation and management of breeds, and to provide services

Examples of the Kahami goat breed, found in parts Saurashtra (Upleta and Jamnagar area), and Dumma sheep, native to the Surendranagar district, were cited. In Karnataka, efforts were ongoing for documentation and registration of the Jowari buffalo breed in the Bhagalkot region.

4.3.3 Key recommendations

Based on the Gujarat and Sahjeevan experience, the following recommendations were put forth:

- The lesser known breeds in the southern states be taken up for recognition and subsequent inclusion in the national registry
- Promotion of Breeders' Associations would be an appropriate mechanism for documentation, registration and conservation of lesser known breeds

4.4 Biocultural Protocols of Livestock Keeping Communities

Mr Hanwant Singh Rathore from the Lokhit Pashu Palak Sansthan (LPPS), Pali, Rajasthan, member of the LIFE Network and RLN, made a presentation on biocultural protocols of livestock-keeping communities, prepared by Ilse Kohler-Rollefson and Hanwant Singh Rathore.

4.4.1 Role of livestock in ecosystem management and challenges faced by livestock-keepers

The presentation highlighted the role that livestock keepers play in conserving breeds and maintaining ecosystems, and stated that livestock keepers are guardians of biological diversity.

Arguing that livestock feed on residual biomass ('left-overs'), while maintaining soil fertility, the speaker cited the case of Karnataka, where shepherds earn an estimated INR 212 million from fertilizing farmers' fields annually; in return, INR 638 million worth of fertilizer is contributed annually to forests and common lands in the state of Karnataka alone.

However, the contribution of pastoralists to agriculture and allied natural resource management systems is seldom appreciated, and livestock-keepers face several problems on account of the following:

- Lack of awareness about the benefits of local breeds, traditional knowledge and local systems

- Pastoralists continue to have a bad reputation, as destroyers of the environment, in many policy-making circles
- Linkages between breeds, their conservation, and the role played by their keepers, often remains invisible to outsiders
- Government agencies and departments continue to give preference and provide funds to initiatives for ex-situ conservation

In order to address these concerns, to enable a change of perception among policy-makers and other stakeholders; to counter threats on account of shrinking grazing lands, and disintegration of traditional institutions and knowledge; and support pastoralists to claim their stake and assert their assets, the concept of biocultural protocols was introduced and explained.

4.4.2 Biocultural Community Protocols

Biocultural community protocols (BCP) is a new tool in the hands of pastoralists, for claiming status as 'indigenous or local community', and is backed by the Nagoya Protocol of the UN Convention on Biological Diversity. The Nagoya protocol on access and benefit-sharing requires countries to support the development of community protocols for access and benefit-sharing by indigenous and local communities, including with respect to animal genetic resources.

BCP document the role of a community in conserving animal genetic resources and ecosystems, thus contributing to their visibility and generating awareness about the role they play in breed conservation and improvement.

The idea of BCP was initially brought forward by legal experts, and involves a central part for the community in documentation and record-keeping, including its resources, role in biodiversity conservation, and customary practices in its own words; NGOs are only expected to facilitate and provide back-stopping support, as may be required. An important element of the process is legal education and awareness of rights; thus, BCP is both a product and a process that must necessarily remain community-owned.

Several examples of community BCPs were cited, from India and abroad, including the case of Raikas of Rajasthan; Banni Maldhari of Gujarat; Bargur Hill Cattle breeders (Lingayats) of Tamil Nadu; Samburu and the Red Maasai sheep of Kenya; Pashtoon pastoralists of Pakistan; Kuruba shepherding system in the Deccan plateau; Jaisalmer camel breeders, and so on.



4.4.3 Lessons learnt and recommendations

Based on experiences of LPPS and others involved in the process, it may be stated that the process is not easy, is time-consuming, and requires much hand-holding. Further, the following may be said about BCP:

- BCP are an extremely valuable visibility tool and contribute to empowerment of the community
- It gives legitimate ownership and pride to the community

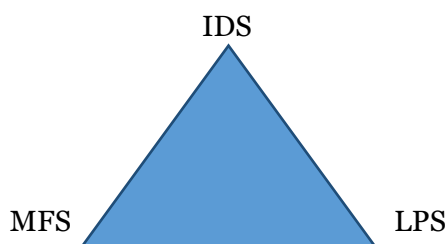
The key recommendation of the presentation was that respective state governments need to encourage and facilitate the process of BCP for various breeds and communities in their states.

4.5 Promoting Integrated Small Ruminant Production for Enhancement of Rural Livelihoods

Dr Balu Athani, of Future Greens, presented the results of interventions undertaken by the Gramochetana Organic Crops and Livestock Producers' Souharda Cooperative Ltd., in the Bagalkot district of Karnataka, which falls in the arid zone.

4.5.1 Core innovations

The interventions undertaken are supported through a triad of activities pertaining to livelihood promotion services, microfinance services, and institution development services.



The livelihood triad is further enhanced through an evolved supply chain, and production systems based on local resources – Low External Input Sustainable Animal Husbandry (LEISAH, adapted from LEISA for agriculture), and facilitation support for market pricing systems.

Financing: To enable access to finance at lower interest rates, funds were cloud sourced at 9.5% interest and on easy repayment terms.

Inputs for animal husbandry: Preventive veterinary care, including deworming and vaccination services, were obtained through coordination with the AHD. For meeting feed and fodder requirement of livestock, plantation of drought-resistant shrubs such as *Desmanthus* and *Stylosanthes*, and top-feed trees such as Subabul and *Acacia nilotica* was taken up on farm bunds and waste lands. In addition, keepers were trained in preparation of micronutrient cakes using readily available inputs.

4.5.2 Pilots and innovations

The organisation has attempted several innovations in the goat/sheep subs-sectors with the aim of enhancing returns to producers.

Formation of groups and access to credit: In a pilot aimed at direct enhancement of income through sheep-rearing, 64 Activity Based/ Joint Liability Groups (ABG/JLG) were provided credit to the tune of INR 42 lakhs. Women from 328 families were provided support between INR 8,000 and 10,000 each, towards purchase of 2-3 lambs of 3 months' age, with a 'buy-back arrangement' based on weight of the lamb after 6 months and adequate veterinary care inputs.

Experiences from first cycle: In the first cycle of the intervention, 841 lambs were provided; at the end of 6 months, an average income (net profit) of INR 4,500 per lamb was received by the participants. In the second cycle, 413 lambs were being reared with the aim of selling at Bakr id. In the process of the pilot, valuable learning and experience was gained:

- As the lambs were open-market sourced, a spurt in purchase prices up to INR 500 per lamb was observed at the time of procurement
- Ram-lamb rearing was a new livelihood activity for 80% of the women involved
- There was a reluctance on the part of both producers and buyers to adoption of a transparent pricing mechanism (based on live weight instead of 'nigaah' or perception-based pricing)
- Average weight gain of 20 kg per lamb was easily attained (from 18-23 kg at procurement, to 36-45 kg at the time of sale)
- There were no markets/ buyers for adult lambs, and institutional sales had to be facilitated, wherein the price received ranged from INR 170-210 per kg live weight

Streamlining the supply chain: To streamline supply of ram lambs to women's groups, the organisation worked with shepherds (18 ABG/JLG), and facilitated them access to finance of INR 50,000 per group. In addition, veterinary medicines were supplied on cost basis, with a buy-back agreement for purchase of lambs on a live weight basis. The ram lambs were supplied to women's groups and the female lambs sold in the market.

Production system innovations: Working with 76 women's groups, 70% of whom were landless, each member being provided INR 20,000 for purchase of two goats, several productivity enhancement measures were applied, such as selective mating, thrust on local breed (Osmanabadi type), fodder development and timely veterinary care.

4.5.3 Key learnings and recommendations

The pilot project and other innovations undertaken achieved impressive results, and offer important lessons and recommendations for developing small-ruminant based livelihoods. The most significant results being:

- Although there was initial resistance to acceptance of a transparent pricing system based on live weight, the concerned constituencies are now accepting it as a norm

- The initiatives have been institutionalized, through federation at Gramochetana Cooperative
- A system for direct sourcing of lambs from shepherds has been developed
- There has been a significant reduction in mortalities (0.43% in lambs and 0.75% in goats)
- Forward linkages (markets) have been partially successful
- A niche has been created in a new market segment, of young lambs for premium meat

Some recommendations were put forth for consideration and policy interventions to enhance returns to small ruminant producers:

- Although live weight can serve as a baseline in pricing of animals, a three-axis system based on age, sex and phenotype, may be considered for development; the pricing of milk was cited as an example, which is based on quantity, fat content and SNF (saturated non-fats) percent
- There is need for a massive thrust on institutionalization of producers to break through traders' cartels
- Small ruminant production deserves to be recognized as a prime livelihood option in state schemes
- Greater focus and larger investments are required for the development of commons for grazing

4.6 Commons and Livestock

RLN, through its member FES, has been campaigning for a Commons policy, and for enabling orders for the better governance of commons. The Network has assisted the state governments of Rajasthan, Andhra Pradesh and Karnataka in designing and operationalizing programmes that lend themselves to the development and governance of commons and water resources. These include capacity building of government officials and NREGA 'mates'. Several facilitating orders empowering Panchayats to map and restore Commons have already been issued by the Government of Rajasthan. FES also assisted the government of Andhra Pradesh in drafting the Common land policy, which was stymied by the formation of the separate state of Telangana and the agitations preceding it. In addition, a collaborative arrangement was established between the Government and NGO networks for implementing a programme titled "Commons-NREGA". Following the direction from the Lok Adalat of Karnataka (People's Court set up by the Karnataka State Legal Services Authority) to seek assistance of FES, two districts have executed MoUs with FES to help facilitate the development of comprehensive plans for restoration of Commons. Together the three initiatives have influenced the governments to invest (NREGS) about USD 258 Million over the next five years (2014-19) with a potential to restore 1.9 Million acres in 31,750 villages. Important outcomes in 2014-15 are mentioned below:

- FES has been asked to assist the government of Rajasthan in supporting all the 9,116 Panchayats in the state to undertake the restoration of grazing lands. This will be accomplished by setting up a small secretariat through which it would build the capacities of the Panchayats and other government functionaries which will help Panchayats plan and undertake restoration efforts and campaigns.

- The government of Rajasthan and FES are set to execute an MoU to secure and restore 30,000 hectares of common lands in five districts under a Public – Private partnership involving Corporates and leveraging MGNREGS in a cost sharing arrangement, with FES as the Implementing Agency.
- FES has been tasked with the capacity building of Panchayati Raj representatives, mates and Panchayat samiti/Block level officials of Bhilwara, Ajmer, Pratapgarh and Udaipur through Prakriti Karyashala. Also organize trainings to the staff of State Rural Livelihood Mission in three blocks of Bhilwara, Udaipur and Pratapgarh districts.
- FES is extending support to District and Block level planning in one block each, in Bhilwara, Udaipur and Pratapgarh districts, by providing critical information required to develop the land and water-use plans of the blocks and districts. The aim is to build capacities of functionaries in the other blocks and districts to undertake similar exercises in their respective locations. This would help in the development of holistic natural resource governance plans that are based on an understanding of the linkages between the various environmental and social sub-systems.

5. CONCLUSION

Concluding the day's deliberations, a summary of the important discussion points and recommendations was shared by Ms Varsha Mehta from SA PPLPP. The main points are as follows:

5.1 Health

- In a study conducted by WOTR in Telangana and Tamil Nadu, mortality losses have been estimated at between INR 15,000 and 21000 for goat-rearing households, and between 16000 and 51000 for sheep-rearing households.
- The importance of extending primary and preventive veterinary care to the village level has been recognized across all the states, and efforts are afoot to make this happen, including through mobile veterinary units, *Avika Bandhu*, and so on
- Provision of adequate care and facilities (e.g., mobile shelter, solar light, net, gum boots, etc.) for shepherds along the migratory routes, in addition to mandatory deworming and vaccination was suggested.
- Development of vaccines for diseases such as Brucellosis, Blue Tongue and CCPP was advocated by shepherds' representatives.
- Training of livestock-keepers and community animal health workers (CAHWs) needs to be undertaken in an extensive and focused manner
- Concern was voiced over the high levels of pesticide and chemical fertilizer usage on farm lands; the chemicals remain in the agriculture residue that herds of goats and sheep graze on, and hence is a hazard to the health of the animals, as well as the end-users who consume the meat or milk of these animals.

5.2 Breed

- Registration of 'undescribed' and lesser known breeds through promoting establishment of Breeders' Associations was suggested; this will result not only in conservation of the breed, but also fetch higher economic returns
- Quality bucks, because they fetch higher prices, end up in abattoirs.
- Inbreeding and negative selection of bucks and rams are seen as major problems which the state departments want to tackle, and various initiatives are being planned towards this objective, including distribution of superior bucks, competition and awards for best bucks/ rams, support for exchange of village bucks, and so forth
- Geographic indexing of breeds was mentioned as an area for further exploration and support, especially for breeds/ characteristics which have a high export potential

5.3 Shelter

- Construction of goat shelters using locally available resources is not only cost-effective and animal-friendly, but also easier to construct and maintain

5.4 Feed and Fodder

- Livestock-keepers are primarily dependent on common lands for meeting the fodder requirements of small ruminants, and institutions for the management and development of commons occupy the center-stage in promotion of programmes aimed at livestock (small ruminant based in particular) development
- Feed and fodder conservation measures, as well as operation of fodder banks (as found in Rajasthan and Gujarat) to be reviewed and adapted in south India

5.5 Markets

- The demand for meat (mutton and chevon) is rising phenomenally in national and international markets, and this needs to be capitalized on for the benefit of the livestock-keepers
- Based on a study in the southern states, it was estimated that 65-70% of the price paid by the end-user goes to the primary producer
- Development of market infrastructure was suggested as a basic requirement, including construction of shed/ shelters for animals and their keepers, provision of water, screening of diseased animals from healthy, veterinary care and quarantine facilities
- Exploration of alternative marketing channels, including tie-ups with institutional buyers, and development of value chains, along with the existing actors in the chain, was an option worth considering
- Research and development in development of by-products markets was important for enhancing returns to the producers
- Various marketing innovations are being piloted by different players, both in the government and non-government sector, and many of these are showing positive outcomes, viz., formation of FPOs, ram-lamb fattening in

Sira taluka of Tumkur district, and experiences of Future Greens in Bagalkot district of Karnataka

- DADF, GoI will develop a framework for promoting livestock markets, which will be shared with all the state governments for formulation of appropriate policies and programmes in support of development of livestock markets

5.6 Financial Services to Livestock Keepers

- Three-year insurance for livestock was reemphasized as a measure for improved risk management
- Extension of financial services to livestock-keepers through GoI's Kisan Credit Card scheme was stressed upon by the JS; 'farmer' includes both agriculturists and livestock rearers – awareness creation required among both officials and livestock farmers
- The Self-Help Insurance Programme to be introduced in Telangana, which proposes insurance of each animal at INR 100 per unit (of which 50% would be contributed by the farmer and 50% by the government) would be followed for its efficacy and impact

5.7 Other

- Introduction and promotion of subsidy-based programmes to be resisted; need to shift towards a fee-based and area development approach.



**Proceedings of Regional Workshop on Strengthening
Small Ruminant Based Livelihoods, September 2015,
Bhopal**



1. INTRODUCTION AND OBJECTIVES

A regional workshop on “Strengthening Small Ruminant Based Livelihoods” was organized at RCVP Noronha Academy, Bhopal, hosted by the Directorate of Animal Husbandry and Veterinary Services, Government of Madhya Pradesh, on 14th September, 2015. Participants included representatives from animal husbandry departments, representatives of livestock-keepers, Community Animal Health Workers (CAHWs), and NGOs working in the small ruminant sector, from the states of Madhya Pradesh, Maharashtra and Uttar Pradesh. The meeting was facilitated by DADF and SA PPLPP, as a follow-up to a national workshop in New Delhi on the same topic, which was co-organized by DADF and SA PPLPP in January 2015.

The regional workshop aimed to highlight the importance of small ruminants in the livelihoods of the resource-poor and asset-less households, marginal and small farmers, women and destitute. As an outcome, it was expected that concrete measures at the policy and programmatic levels would be identified, and subsequently implemented, for strengthening goat and sheep-based livelihoods in the participating states, through a collaborative approach involving government departments and non-government actors. The workshop also served to sensitize policy-makers, legislators and bureaucrats, of the importance of small ruminants in sustaining farming households in rainfed areas, and the need to focus on small animals, along with cattle and milch animals.

The number of participants at the workshop was over 100, and their details are as provided in Annexure 2-E.

2. INAUGURAL SESSION

The workshop was formally inaugurated by the Ms Kusum Mehede, Minister for Animal Husbandry, Government of Madhya Pradesh (GoMP). Also present on the occasion were the Joint Secretary (ANLM), DADF, GoI, Mr Sanjay Bhoosreddy; Principal Secretary, Animal Husbandry, GoMP, Mr Prabhanshu Kamal; Director-AHD, GoMP, Dr R K Rokede; Under Secretary-AHD, GoMP, Dr R K Sharma; and senior dignitaries from the states of Maharashtra and Uttar Pradesh attending the workshop.

In her inaugural address, the Honourable Minister, Ms Kusum Mehede stressed on the importance of socio-economic development, as a large segment of the population was still living on the margins and waiting for the benefits of development to reach them. She said that development workers in particular, from both government and non-government sectors, needed to focus on this segment, and play a constructive role in improving their lives. Drawing attention to the plight of small and marginal farmers in rainfed areas, she said that agriculture was becoming an increasingly risky profession, especially with climate variability and rising input costs, and steps are required to be taken to not only strengthen alternative and complementary livelihood sources, but also to make farming communities more resilient in the face of climate change and its

attendant problems, including a focus on small ruminants as a reliable and steady source of income.

In a reference to the ongoing controversy in the state between the forest department and livestock-keepers, in respect of use of forest areas for grazing, she suggested that appropriate and acceptable agreements between the department and the keepers need to be reached for the optimal development of both, the forest resources and livelihoods dependent thereon.

Expressing concern over the long-drawn and cumbersome process of recognition and registration of indigenous breeds, she requested the state and central government officials to look into the matter and expedite the process, so that registration and conservation of native breeds maybe completed promptly and in a time-bound manner; this would also result in economic gains to the livestock-keepers in the state, she added.

Lastly, the Minister also suggested increasing the number of veterinary colleges and universities in the state, in order to produce technically qualified personnel in greater numbers, and support livestock-related research and development in the state.

Addressing the participants from the three states, Mr Sanjay Bhoosreddy, JS (ANLM), DADF, GoI, expressed his disappointment over the lack of recognition and importance accorded to small ruminants and poultry in policy discourse, programme development, and popular perception regarding livestock. While emphasizing the importance of goats, sheep and poultry in rural livelihoods, he said that these could become sustainable sources of income, provided improved and scientific management practices were adopted by livestock-keepers, including preventive veterinary care to check avoidable mortalities; he added that these were elementary prescriptions, and the cost involved in their adoption was negligible compared to the returns there from. Citing an example from a village in Khargone which he had visited earlier, where a SA PPLPP-supported pilot project was being implemented, he said that he had witnessed there the effectiveness of the *Pashu Sakhi* model, and said that the CAHWs, such as *Pashu Sakhi* or *Pashu Mitra*, by whatever name called, played an important role in last-mile service delivery, and were an important adjunct to the mainstream veterinary service system of the government.

Whereas productivity enhancements would provide the first level of improved returns to producers, the state government and concerned departments therein should also pay attention to developing livestock market infrastructure and the regulatory frameworks within which they operate. He shared the case of Karnataka, where the APMC Act was amended to provide space for livestock yards in agriculture markets (which are regulated by the Act), and suggested that other states may adopt such progressive measures too.

Stating that corporates were required to set aside 2% of their profits for social development projects under 'Corporate Social Responsibility', he said that development agencies should play a proactive role in approaching corporates with proposals for adoption of villages and development of the livestock sector.

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September 2015

As in the previous regional workshops, Ms Varsha Mehta, Team Leader, SA PPLPP, shared the objectives of the workshop; the programme schedule for the day, and the recommendations from the national workshop on the same topic, held at New Delhi in January 2015.

With these speeches and presentations, the inaugural session was concluded.

3. SESSION I: PRESENTATIONS FROM MADHYA PRADESH

For the state of Madhya Pradesh, presentations were made by Dr R K Sharma, Under Secretary, on behalf of the AHD, MP; Mr Nilesh Desai, Sampark Samaj Sevi Sansthan; Mr Sandeep Kumar, Aga Khan Rural Support Programme (India), MP; and Mr Upneet Rajhoria, Goat and Sheep Farmers' Welfare Association (GSFWA).

3.1 Animal Husbandry Department, Madhya Pradesh

Making the presentation on behalf of host organisation MP AHD, Dr R K Sharma shared an outline of the state's policies and programmes pertaining to small ruminants, focusing on the need for interventions in livestock markets, aimed at infrastructure development, transparency, and collectivization of producers.

3.1.1 MP Livestock Development Policy

Dr Sharma started his presentation with outlining the important policy provisions pertaining to livestock development, as applicable to small ruminants, from the MP Livestock Development Policy, which had been formulated through a democratic process in 2011 following multi-stakeholder consultations, adding that the policy was dynamic and responsive, and had scope for incorporating revisions based on latest developments happening in the sector. Salient features of the policy include:

- The policy is formulated in accordance with the varied agro-ecological and socio-economic conditions in the state, and is situation-specific
- The aim is to maximize returns to producers, resulting from the growth and development of the sector
- It envisages providing equal opportunity and benefits to women, and enabling environmental stability
- Emphasis has been placed on involvement of communities, and private sector, farmers, and NGOs in livestock development
- The thrust is on establishing and strengthening forward and backward linkages, breeding, nutrition, health, development of feed and fodder resources, and capacity building of stakeholders
- It also stresses on use of modern technology for making veterinary care services accessible to livestock-keepers at minimal cost
- To promote entrepreneurship in the sector, the policy emphasizes use of information dissemination techniques for enhancing awareness about livestock and livestock product prices among producers.

3.1.2 Sheep and goat population in MP

Although there had been a drop in the numbers of sheep and goat in the state, the livestock productivity and value of output trends were positive and more encouraging than the national averages. As of 2012, the state had a goat and sheep population of 80.1 lakhs, and 3.1 lakhs respectively.

3.1.3 Small ruminant development programmes in MP

Development of goat and sheep-based livelihoods was supported under three programmes in MP: as part of the State Plan, under RKVY, and through the Bundelkhand Special Package; the budgetary outlays under each of these, for the years 2010-11 to 2014-15, are as indicated in Table 5.1. As may be seen, there had been a significant increase in total budgetary allocations between 2010-11 and 2013-14, but the total allocation for small ruminants in the budget reduced by about 50% between 2013-14 and 2014-15. Under the state programme, there were two schemes: distribution of goat unit (10F+1M), and distribution of bucks of superior breed.

Table 5.1: Budgetary provisions for development of small ruminants in MP

Sl.	Programme/ Source	Budget (INR in '000)				
		2010-11	2011-12	2012-13	2013-14	2014-15
1	State Programme	394.72	330.94	356.13	503.35	600.00
2	RKVY	604.45	251.00	1420.00	985.00	529.00
3	Bundelkhand Special Package	0.00	474.00	506.00	775.00	0.00
4	Total	999.17	1055.94	2282.13	2263.35	1129.00

Distribution of goat units: For a unit of 10 does and 1 buck, the unit cost was INR 33,212 (details in Table 5.2), of which 50% was provided as subsidy to beneficiaries from the SC/ST categories and 25% subsidy in the case of General Category. The beneficiaries could be landless, agriculture labourers, or small and marginal farmers, with experience of goat-rearing.

Table 5.2: Cost break-up of scheme for distribution of goat units (size 10 F + 1 M)

Sl.	Description	Amount (INR)
1	Local, non-descript goat @ Rs 2150/ per goat – 10 goats	21,500
2	Jamnapari/ Barbari/ Sirohi/ Beetal buck – one	5,000
3	Insurance premium @ 10.35% for 5 years	2,742
4	Goat feed – 250 gm for 3 months @ Rs 12/kg	2,970
5	Medication, vaccination, deworming, etc. @ Rs 150 per goat	1,000
	Total	33,212

Buck distribution: The buck distribution scheme was aimed at improving the productivity of local herds using bucks of superior breeds, such as Jamnapari, Barbari, Sirohi or Beetal. The unit cost of the scheme was INR 4,000, and

eligibility criteria included ownership of at least 5 goats; of the total cost, 80% was given as grant, and 20% was expected to be beneficiary contribution.

The National Mission for Protein Supplementation (NMPS) was implemented through the RKVY in 2011-12 and 2012-13; it was aimed at benefiting BPL households in the SC and ST categories through promotion of intensive goat-farming, with a unit size of 95 does and 5 bucks. Provisions for housing, medication, supplementary nutrition and insurance were covered under the programme. The cost per unit under this scheme was INR 236,460.

Under the same programme, there was also provision for supporting traditional goat-rearing households, which entailed identification of 2,000 goats within a circumference of 10 km; subsequently, there was registration of goat-owners, training of goat scouts, and support for medicines and nutrition. Cost per unit in this case was INR 497,000.

In the years 2013-14 and 2014-15, breeding farms for Sirohi and Barbari breeds were established in the state.

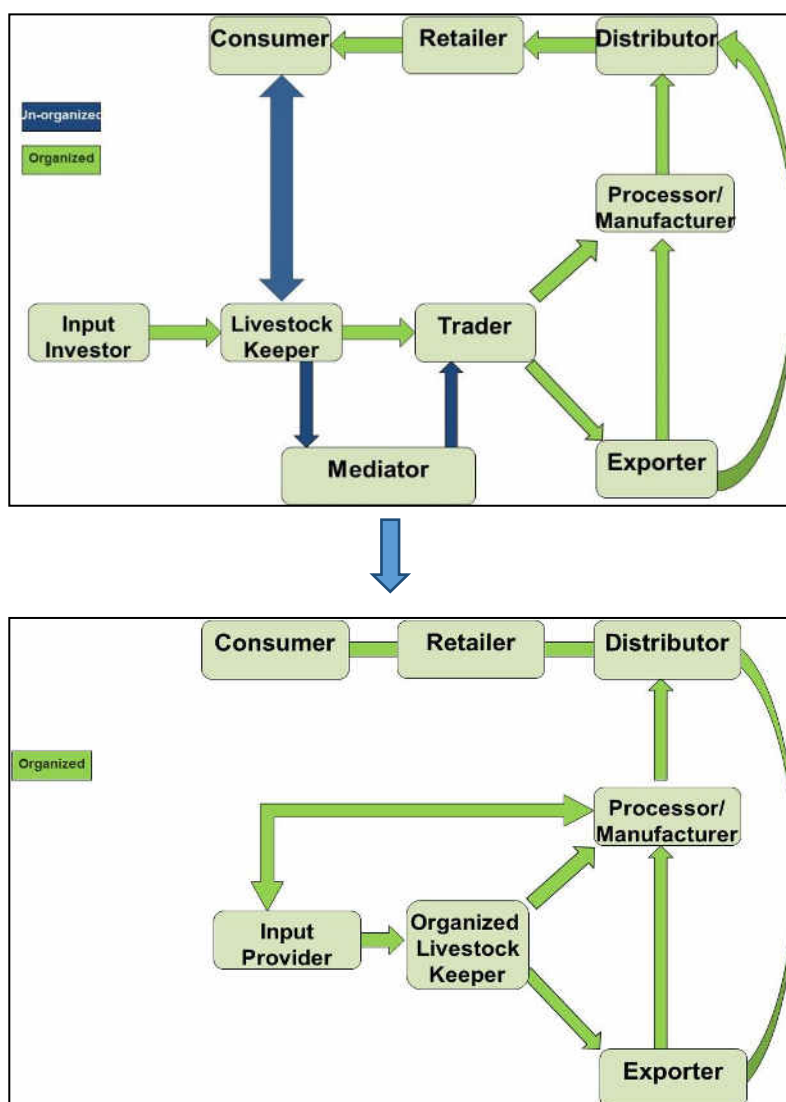
The Bundelkhand Special Package Programme, which is applicable in all districts of the Bundelkhand tract in MP, involves distribution of goat units, including 10 graded does of Jamnapari/ Sirohi breed, and one buck. As in the other goat unit distribution schemes, provision of medicines, supplementary nutrition and insurance is covered under the scheme, the unit cost of which is INR 41,628; of this amount, 80% is given as grant and 20% is expected as beneficiary contribution. Under the same programme, a breeding farm was also established at Minora in Tikamgarh district.

3.1.4 Current situation and requirement for change

Underscoring the need for market interventions and organisation of producers, it was mentioned that with rising demand for meat and other livestock products, there was an opportunity for enterprise development among livestock-keepers, and a shift from being a predominantly unorganized to an organized trade. The three main areas of intervention were described as follows:

- Identification of appropriate issues for research and development
- Reducing the gap between research and implementation
- Organized marketing of livestock products

The two scenarios which depict the marketing channels before and after the interventions are as shown in the following figure.



3.2 Sampark Samaj Sevi Sansthan, Raipuria, MP

In his presentation, Mr Nilesh Desai, Director, Sampark, shared important findings and learnings from the pilot project on 'Strengthening Backyard Poultry' in Jhabua district of Madhya Pradesh, outlining the situation at the start of the project; project objectives and activities undertaken, including establishment of a cadre of *Murgi Sakhis* (women Community Animal Health Workers trained in backyard poultry); results achieved; and measures to be undertaken for ensuring sustainability of benefits and services to poultry keepers as well as goat rearers. One of the important take-away from the project was the importance of combining CAHW services for backyard poultry with goats and/or sheep, for (i) coverage of both categories of livestock reared by the poor; and (ii) to enhance the scope of fee-based returns to CAHWs.

3.2.1 Baseline situation and project objectives

In a baseline household survey conducted in 13 villages of Jhabua during October 2013, it was found that average mortality in backyard poultry was as high as 76%; those who reared poultry were doing so primarily for household consumption.

In terms of dependence on various sources of livelihood, migration emerged as the single most important source, with 64% households citing it as their primary source; agriculture was a distant second, and livestock (including poultry) was mentioned only by 0.2% of the surveyed households; details provided in Table 5.3. It was also mentioned that about 80% of the households were engaged in poultry keeping, and Kadaknath breed of poultry, which is endemic to the region, was almost missing in the cluster.

Table 5.3: Sources of livelihood in project villages (Baseline; October 2013)

Sl.	Source	Percent households (citing as primary source)
1	Agriculture	34
2	Agriculture labour	0.2
3	Non-agriculture labour	0.2
4	Migration (seasonal)	64
5	Services	0.7
6	Livestock-rearing	0.2
7	All	100

With the situation as described above, a project was formulated for a cluster of 10 villages (1,529 households of which 1,220 were rearing poultry), with the following objectives:

- To reduce mortality in poultry birds from 76% to under 40%
- To improve community knowledge and individual rearing practices, with the aim to make backyard poultry a sustainable source of livelihood

3.2.2 Project activities and processes

The following activities and processes were undertaken in the project:

- Popularizing the benefits from poultry-rearing through street plays in villages, and raising community awareness about issues and opportunities in poultry-keeping
- Selection and training of *Murgi Sakhis*; subsequently, provision of preventive veterinary care services through them
- Awareness campaigns conducted on the importance of deworming and vaccination
- Coordination with government AHD to leverage additional resources for the benefit of poorest households
- Preparation of balanced nutrient-rich poultry feed from locally available resources
- Promotion of low-cost chicken sheds, including the importance of having a separate shed for birds
- Promotion and conservation of Kadaknath breed of poultry

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3.2.4 Challenges encountered

In the process of implementation, several challenges were encountered, many of which were overcome through innovative strategies and persistence, but some of them still endure. The main challenges which were overcome pertained to poultry-keepers' adoption of improved practices, and perceiving poultry as a subsistence livelihood, not as a source of income. Other challenges, which have only partially been overcome, are with respect to *Murgi Sakhis'* reluctance in demanding payment for services from poultry-keepers, and delay in payments or unwillingness to pay by service-recipients. The project team along with the *Murgi Sakhis*, is still working on these issues. Some enduring constraints include:

- Persisting mortality from predation, mainly because of lack of proper housing for birds.
- Mortality from feeding on agriculture residue sprayed with chemical pesticides, which are toxic in nature.
- Issues with promoting Kadaknath, viz., non-availability of chicks in requisite numbers, irregular supply of electricity (for regulating temperature inside sheds), and lack of organized marketing of birds.



3.3 Aga Khan Rural Support Programme (India), MP

The AKRSP(I) has been implementing a pilot project on strengthening goat-based livelihoods in a project cluster of 10 villages in Jhirniya block of Khargone district in MP, since March 2014. The area where the project is being implemented is home to some of the marginalized tribal communities in the state, viz., Barela, Bhil and Bhilala. The major source of income for most households is agriculture, followed by seasonal migration and small ruminant rearing. A presentation on the project approach and results was made by Mr Sandeep Kumar, Project Coordinator, AKRSP(I).

3.3.1 Context and economics of goat-rearing

Goat-rearing is an important livelihood source for the poorest households, its importance being on account of the following main characteristics of goat rearing:

- May be easily liquidated, providing immediate cash returns in emergencies
- Low input cost, and no entry barriers
- Serves as an insurance against crop failure, especially in rainfed areas

Its advantages notwithstanding, there are several constraints that goat rearers face, which restrict the potential returns from the occupation:

- High mortality rates (of a preventable nature)
- Lack of access to/ timely availability veterinary services
- Decreasing availability of water and fodder resources

- Lack of financial resources with owners, which hinders adoption of some improved practices, such as housing and adequate supplemental nutrition

Based on the baseline household survey which was conducted in October 2013, it was learnt that

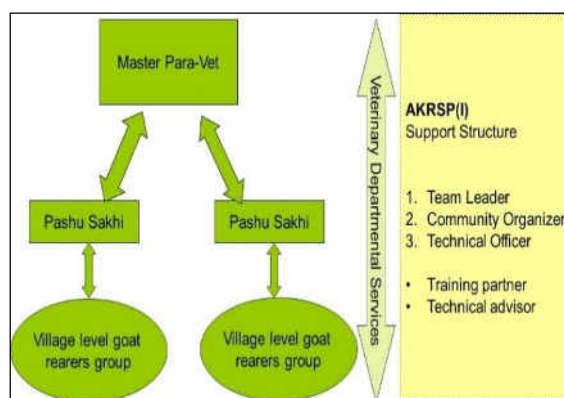
- 42% of the total households in the project villages were engaged in goat-rearing
- Total goat population in the project cluster was 3,081, with an average of 4 per household
- Average number of animals sold per year averaged 1.6 per household, and income earned therefrom was estimated as INR 9,034 per annum
- Average cost incurred on treatment per animal was INR 100 per annum
- More or less all households provide some grains to small ruminants, and average cost of the same is INR 600 per annum per goat
- Average mortality rate in adult goats/bucks was found to be 37% (apparently an exceptionally high mortality year, otherwise it is usually about 25%)
- Average mortality rate in kids was 32%
- Most commonly occurring/reported diseases and symptoms included pneumonia and diarrhoea
- Breeding was a major concern; it was mostly indiscriminate, with 97% being random breeding at the time of grazing in herds
- The area was adjoining the native breeding tract of the Berari breed; many of the local animals bore traits resembling the Berari
- Whereas 58% of the rearers had temporary, covered sheds for their herds, 40% housed their animals only in open enclosures
- Milking of goats seemed to be an uncommon practice, with only 41% households reporting that they milked goats
- For meeting the nutritional requirement of goats, keepers depended primarily on grazing, with animals being grazed for 5-6 hours every day; this was having a detrimental effect on nearby natural resources as the livestock population far exceeded the carrying capacity of the resources; grain was provided to pregnant does on a priority basis
- Water scarcity for domestic and agriculture use was reported as a major concern in all the surveyed villages

3.3.2 Project interventions and implementation arrangements

The following interventions were planned and implemented in the course of the project, which was implemented by a three-member team that was supported by a cadre of trained *Pashu Sakhis*:

1. Developing a cadre of female para-vets (*Pashu Sakhi*)
 - Preventive vaccinations and de-worming
 - Knowledge extension
 - Disease surveillance
2. Housing for goats
 - Through convergence with MGNREGS
 - Developing a low-cost model

3. Feed and fodder security
 - Mineral mixture and feed from local grains
 - Azolla cultivation
 - Salt bricks preparation/procurement
 - Low cost feeders
 - Plantation and fodder production
4. Breed improvement
 - Castration of poor quality bucks
 - Identification of best-performing goats and bucks from existing herds
 - Pilot on reviving the Berari breed
5. Promotion of goat rearers' institutions
6. Goat market promotion



3.3.3 Progress and results till date

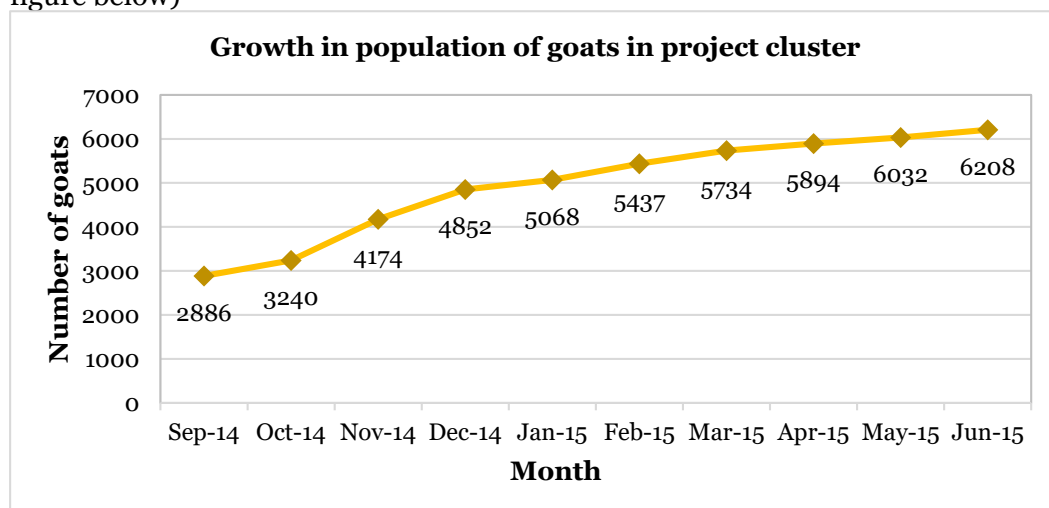
In the course of 18 months, the results of interventions undertaken through the project were already quite visible, most notably in the form of *Pashu Sakhis* who were busy doing rounds of goat-rearing households, educating them about improved management practices, and the benefits of deworming and vaccination. A summary of results was shared with the workshop participants:

1. Cadre of *Pashu Sakhis*
 - 14 *Pashu Sakhis* have been trained in 10 villages
 - Project villages are actively covered by *Pashu Sakhi*
 - Monthly review meetings are conducted
 - Quarterly refresher trainings are conducted
2. Vaccinations and de-worming
 - ET and PPR vaccination camps on main dose and booster dose done in all villages
3. Capacity building of goat-keepers
 - Goat Rearers' Groups formed in all 10 villages (251 households joined so far)
 - Wall paintings on vaccination schedule and other IGMPs done in all 10 villages
 - Trainings on various aspects being regularly conducted
4. Housing
 - 18 low cost houses constructed
 - 2 model houses have been constructed through convergence with MGNREGS
5. Feeding
 - Mineral mixture being supplied to goat-keepers through departmental scheme (725 Kg distributed)
 - Azolla cultivation initiated by more than 100 households
 - Low cost feeders piloted



6. Berari breed bucks have been introduced
7. Goat-rearing households have started getting credit from banks through SHGs
8. Goat market promotion has started

As a result of adoption of improved practices, mortality rates had dropped significantly, and the goat population had increased to 6,208 by June 2015 (see figure below)



3.4 Goat and Sheep Farmers' Welfare Association

The GSFWA was represented at the workshop by its President, Mr Upneet Rajorhia, who shared the organisation's aims and objectives, its structure, functions and plans for the future, in the nature of a "Livelihood Sustainability Program".

3.4.1 About GSFWA – membership, aims and structure

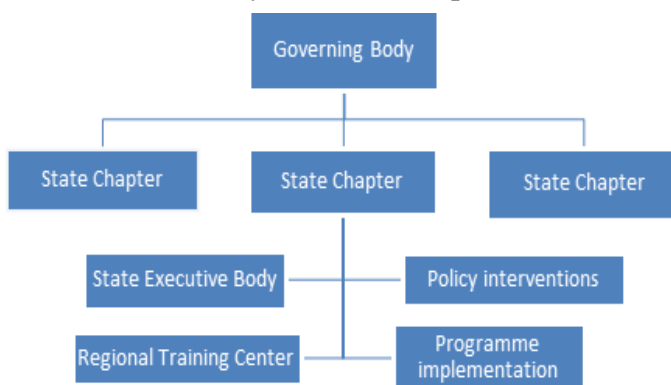
The GSFWA is a national-level body which was set up specifically for the promotion and welfare of goat and sheep farmers, and the small ruminant sub-sector. The association has 800 members from 16 states around the country; it aims to increase its membership to over 10,000 and cover all states and union territories in the country.

The organisation has a target to support establishment of over 200 private breeding farms, with 100-500 animals (sheep/ goat) each by the end of year 2016; currently, it is actively involved in the conservation of indigenous breeds, genetic upgradation, and for improved performance traits in small ruminants. Specialist and more experienced members of the Association provide technical support to other producer members on aspects pertaining to farm management and cost optimization. The organisation is in the process of setting up Regional Training Centers through adoption and training of breeders; it already has training facilities in the states of Madhya Pradesh, Maharashtra, Telangana and Andhra Pradesh. The organisation offers free-of-cost exposure visits at its training centers to the poor, marginal and landless goat farmers, for promoting adoption of small ruminant farming as a sustainable livelihood. In addition,

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September 2015

producers are also being facilitated for establishment of forward and backward linkages for maximization of returns.

The management of the organisation is multi-layered, with separate State Chapters, and each state having its own executive body; these are expected to be formally announced by the end of the year (2015). At the central level is the organisation's governing body, comprising commercial goat and sheep farmers from 8 states, each with an ownership of 500-2,000 animals. The organizational structure is as shown in the adjoining figure.



3.4.2 GSFWA's Livelihood Sustainability Program (LSP) - proposed

The organisation hopes to start LSP with support from state governments in the states of MP, Uttar Pradesh, Chhattisgarh, Maharashtra and Telangana.

Goal and Objectives of LSP: The following were stated as the goal and objectives of LSP:

- To provide means for sustainable livelihood to the economically deprived
- Conservation of indigenous breeds of small ruminants, and their genetic improvement through selective breeding
- Identification of beneficiaries based on economic parameters; their exposure and training on scientific farming
- Sourcing of genetically pure & vaccinated breeding lines from organized member farms, tagging and supply to the beneficiaries
- Creation and maintenance of production logs
- Assessment of value of the reproduced animals, and provide unified sales platform for 100% value realization by the beneficiaries
- Redistribution of reproduced stock among new beneficiaries
- Impact assessment, and information dissemination in the public domain.

Stakeholders: Three main stakeholders of LSP are envisaged: GSFWA, beneficiary farmers, and the state government/ funding partner. A monitoring committee will be constituted for tracking progress and sharing information with the concerned stakeholders. The mechanism of information flow, and interventions to be undertaken is as indicated in the figure below.



Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September 2015

Expected outcomes: The expected outcomes of the LSP are as follows:

- Reproduction of breeding stock with 20% increased performance potential within 24 months
- It would be possible to attain 3 breeding cycles over a period of 24 months, in comparison to the current average of 3 cycles over 36 months.
- Efficient management system would reduce rate of mortality among young ones
- LSP would induce economic sustainability in more than 500 families, and provide indirect employment to many more

4. SESSION II: PRESENTATIONS FROM MAHARASHTRA

The state government of Maharashtra was represented by representatives from the Animal Husbandry department (Dr S P Sawant, Additional Commissioner, and Dr R R Chandel, Assistant Commissioner), and the Punyashloka Ahilyadevi Maharashtra Sheep and Goat Development Corporation (MSGDC) (Dr Sachin H Tekade, Assistant Director). There was also a presentation from Mr Romit Banerjee, Manager, Watershed Organisation Trust, on improving livelihoods through small ruminant development.

4.1 Maharashtra State Presentations

The aspects covered under the presentations of the Maharashtra AHD and MSGDC are presented in the following paragraphs.

4.1.1 Maharashtra Livestock Policy, 2010

The government of Maharashtra adopted the new Livestock Policy in the year 2010, which includes a breeding policy for sheep and goat; the objectives are to make rural goat and sheep rearing sustainable, and upgrade local non-descript population (genetic improvement) for increasing meat and milk production. Following are the main features:

- The aim is to increase meat production for meeting local demand, and also explore export avenues; for sheep, increased wool production is also included
- Conservation of native breeds; research and analysis to be undertaken by MAFSU, Corporation, SAU, academic institutions, and selected NGOs
- Desired genetic improvement in the goat population will help in reaping the benefits of dual purpose breeds through use of appropriate breeds; promoting development and rearing of dual purpose goat breeds
- Selective breeding/ genetic improvement of local, indigenous goat and sheep breeds such as Osmanabadi and Sangamneri (goats) and Deccani (sheep), through rigorous phenotypic characterization; to evolve and adopt a strategy for development of a sturdy goat breed which would sustain and thrive in heavy rainfall areas
- Establishment of Breeders' Association for indigenous sheep and goats
- To bring about the desired genetic improvement, use of ART/ AI on a controlled basis was advocated; considering the short gestation period and reproductive life span of goats, natural service would continue to be the major strategy

- Marketing strategies for goat meat: Designing, promoting and encouraging APMC-like trade models in private, cooperative as well as corporate sectors, ensuring the trade of live animals (goats) at these markets is on live weight basis, so as to fetch remunerative price to the producers vis-à-vis ensuring affordable price to the buyers
- Encouraging farmers and SHGs to play a greater role in development of the small ruminant sector



4.1.2 Goat and sheep population in Maharashtra

The population of both goats and sheep in the state had shown a consistent decline over four Livestock Census operations, between 1997 and 2012, as shown in Table 5.4. Over a period of 15 years, the total small ruminant population in the state had declined by over 25%.

Table 5.4: Trend in goat and sheep population in Maharashtra

Sl	Species	Population (numbers in lakhs) as per 16 th -19 th Livestock Census			
		1997	2003	2007	2012
1	Goat	114.34	104.49	103.91	84.31
2	Sheep	33.68	31.75	29.09	25.78
3	Total	148.02	136.24	133.00	110.09

The breed-wise population of sheep and goats in the state, as of 2007, is provided in Table 5.5. As is evident from the table, 85% of all goats and 89% of all sheep in the state belong to the 'non-descript' category. Important goat breeds of the state include Osmanabadi, Sangamneri, Kokan Kanyal and Berari. In sheep, Deccani is the only breed of prominence found in the state; its ecotypes include the Madgyal, Sangamneri, Solapuri, Kolhapuri, and Lonand. It is estimated that a total of 1 lakh families are engaged in sheep rearing, and 48 lakh families practice goat-rearing in the state of Maharashtra.

Estimated meat production in the state is 72.25 thousand MT, and wool production is 1,538.62 MT.

Table 5.5: Breed-wise population of sheep and goat in Maharashtra (2007)

Sl.	Species and breed	Population (number)	Percent of all goats/all sheep
1	Osmanabadi goat	1,276,886	12.3
2	Sangamneri goat	211,135	2.0
3	Other goat breeds	67,921	0.7
4	Non-descript goat breeds	8,835,226	85.0
5	Deccani sheep	252,140	8.7
6	Other sheep breeds	61,472	2.1
7	Non-descript sheep breeds	258,5032	89.2

4.1.3 Programmes for small ruminants and their coverage

The major programmes for small ruminant based livelihood development in the state are supported under the State Plan and RKVY, as shown in Table 5.6. In addition, there are programmes and schemes for goat and sheep development, which are implemented by the Corporation (MSGDC).

Table 5.6: Programmes for goat and sheep based livelihood development in Maharashtra

Sl	Program me/ scheme	Year	Details of scheme	Number of beneficiaries	Expenditure (INR in lakhs)
1	State Plan (General, SCSP and TSP)	2011-12 to 2014-15	Distribution of partially stall-fed goat units (10+1) for rural employment generation	9,910	4,723
2	SC Sub-Plan (SCSP) beneficiary scheme	2011-12 to 2014-15	Distribution of goat units at 75% subsidy under district plan scheme for rural employment generation	6,600	6,363
3	RKVY		Distribution of goats (40+2) for employment generation, in drought-prone areas, at 50% subsidy; unit cost INR 1.5 lakhs	1,490	2,235
4	RKVY	2015-16	Distribution of goats (40+2) for employment generation, except in drought-prone areas, at 50% subsidy; unit cost INR 1.5 lakhs	660 (proposed)	(in progress)
5	Training	Ongoing	For generation of self-employment; 7 days' programme (INR 200)	NA	NA

For the period 2011-12 to 2015-16, the total budget for small ruminants under Centrally Sponsored Schemes (CSS) was INR 269.63 lakhs, of which 80% grant had been received and 20% was awaited; whereas under the State Plan, the total

budget for small ruminant development for the year 2015-16 was INR 2,454.49 lakhs. Details of the CSS and State Plan schemes are as shown in Tables 5.7 and 5.8 respectively.

Table 5.7: CSS for goat and sheep development in Maharashtra (2011-12 to 2015-16)

Sl	Year	Name of the scheme (all have subsequently been merged under NLM)	Total cost	Grant received	Grant awaited
			(INR lakhs)		
1	2011-12 to 2015-16	Integrated Development of Small Ruminants and Rabbits (State of the Art AI Center for Sheep and Goat at NARI, Phaltan, Satara)	199.73	150.00	49.73
2	2011-12 to 2015-16	Conservation of threatened breed of livestock (Conservation of Berari goat by M/s Sagar Rural Development Foundation, Nagpur)	69.9	66.95	2.95
3	Total		269.63	216.95	52.68

Table 5.8: State Plan Schemes for goat and sheep development in Maharashtra (2015-16)

Sl	Year	Name of the scheme & brief description	Financial target (INR lakhs)
1	2015-16	Distribution of partially stall-fed goat units (10 F + 1 M); for individuals on 50/75% subsidy Covers cost of purchase of goats, insurance, goat shelter and necessary equipment	1,500.00
2	2015-16	SCP Beneficiary Scheme For individuals; 75% subsidy	954.49
3	Total		2,454.49

Among the programmes implemented by the MSGDC are the following:

- Training on sheep and goat rearing (3 day programme) for farmers
- Supply of breeding bucks and rams on actual cost-basis
- Distribution of sheep and goat units to beneficiaries selected under various government schemes
- Provision of improved electrical shearing facility to farmers (at INR 1.5 per sheep)
- Insurance for sheep and goat owners (INR 80 each) and their livestock (INR 19 each)
- Establishment of market yards for sheep and goats (through RKVY funds)

4.1.4 Issues and challenges in development of small ruminants

The following were cited as the main challenges encountered and some concerns in development of small ruminants in the state:

- Decreasing area under grazing lands

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September 2015

- Scarce rainfall (with increasing frequency), affecting biomass availability from commons
- Large gap between demand and supply of livestock products
- Lack of scientific research in the area
- Absence of a feasible economic model for development of goat/sheep-based livelihoods
- Absence of inter-state checks during transportation of livestock, which affects disease occurrence and outbreaks
- Total prohibition of livestock from grazing in forest areas
- Lack of public and private investments in development of the sector

4.1.5 Suggestions

Several suggestions were put forth for development of sheep and goat sectors, including areas for GoI intervention. Most of the suggestions were directed at breed improvement, disease control, development of markets and market infrastructure, and augmenting fodder resources for small ruminants.

- Scientific programmes to be undertaken for upgradation of local goat and sheep breeds
- Establishment of multi-purpose goat and sheep extension centers
- Establishment of livestock markets for goat and sheep
- Establishment of open nucleus breeding programme for goat and sheep
- Establishment of slaughterhouses for small ruminants
- Establishment of Breeders' Association
- Modernization of existing slaughterhouses to provide clean and hygienic meat and meat products to the consumers
- Creation of disease-free zones for goat and sheep in the state
- Conservation of native breeds of Maharashtra
- Provision of financial assistance to dormant cooperative societies, in the form of share capital, to purchase necessary equipment and other materials
- Effective utilization of available feed and fodder resources for goat and sheep, by improving productivity of pasturelands; introduction of improved fodder seeds and increased biomass production from wastelands

Areas requiring GoI intervention (as suggested by Maharashtra):

- To 'reserve' grazing lands for livestock/ small ruminants
- Increased budgetary outlays and financial assistance to project
- Establishment of research centers
- Supply of parent stock
- Strengthening check-posts for disease control at state borders
- Strengthening capacity of training institutes

4.1.6 Success story

The presentation ended with a success story of a farmer in Kawathe, Tal-Wai, Satara district, about 65 km from Pune.

Thirty-year old Pruthviraj Dilip Chavan, a graduate of IIPM, Bengaluru, had turned successful entrepreneur-cum-trainer in goat rearing. He started in the year 2011 with a stock that consisted of 7 goats of non-descript breed. With adoption of IGMPs and breed improvement, his flock size has increased to 138, including 50 does, 3 bucks and 85 kids; breeds maintained by him include Sirohi, African Boer, and local non-descript. His annual net profit is in the range of INR 7-8 lakhs.

4.2 Watershed Organisation Trust (WOTR)

Presenting findings relevant to Maharashtra from research studies conducted by WOTR on CPRs, livestock, and mortality in livestock, Mr Romit Banerjee, Manager-WOTR, shared some concerns and recommendations for strengthening small-ruminant based livelihoods in the state. These are summarized below by topic of discussion.

4.2.1 Livestock ownership and risk

Based on a research study by WOTR for SA PPLPP and CCAP, the following findings emerged:

- There was a drastic shift from mixed livestock rearing to dairy-based farming with preference for crossbred animals
- The above shift in livestock-rearing practice lowered the adaptive capacity of poor households, especially to impacts of climate change
- The risk was further aggravated because of high dependence on resource and input-intensive livestock production systems which were being propagated
- There was a fall in the average number of animals (small ruminants) reared by households

4.2.2 Fodder and feed

The area under CPRs is shrinking, as is their productivity; there is a need for laws and supportive mechanisms to ensure tenure rights to small ruminant rearers. The current scenario is dominated by large ruminant rearers for milk production.

Citing the example of Darewadi watershed, where watershed development programmes have been undertaken, it is observed that wherever soil and moisture conservation measures are in place, shepherds have access to more resources, and are reaping rich harvests from both agriculture and sheep-rearing. However, CPR development is lacking in general, and there is a fodder crisis looming ahead.

4.2.3 Breeds and breeding

Although Maharashtra has many good and registered breeds of goats, their proportion to the total population is quite small; majority of the animals being reared by farmers are of the non-descript breed. However, given that these animals are proving to be a good source of income for a large number of rural households, a critical examination of non-descripts should be taken up, with due attention to regional and cultural variations. In the case of sheep, however, the producers have established well-developed breeding mechanisms.

As small ruminants are key assets for the landless and small and marginal farmers in dryland areas in particular, the breeding strategy should hinge upon optimal utilization of available resources, as drylands are fragile ecosystems. Stating that the “Plan to Plan” approach to development of small ruminants was detrimental, it was emphasized that genetic improvement is a long-term activity and a focus on the same was the need of the hour.

4.2.4 Marketing and cooperatives

Although it is recognized that goat-rearing provides an alternative livelihood option to landless, marginal and small farmers, the lack of access to and availability of credit for the purpose is a constraint that hinders development of the sector. It was suggested that goat unit distribution schemes should integrate a credit component in them, for rearers to be able to undertake IGMPs and gain better returns on a sustained basis.

As regards sheep and goat rearers’ collectives, there are 2,225 Sheep and Goat Breeders’ Cooperative Societies in the state; however, most of these are non-functioning.



5. SESSION III: PRESENTATIONS FROM UTTAR PRADESH

5.1 Department of Animal Husbandry, Uttar Pradesh

The state of Uttar Pradesh (UP), represented by Dr Pramod Kumar, Assistant Director, AHD, UP, is a major tract for small ruminant rearing and indigenous breeds that have high commercial potential. The state presentation was very focused, covering aspects of small ruminant population, breeding policy, programmes for development of small ruminants in the state, including budgets, issues and challenges in promoting livelihoods based on small ruminants, and a success story from the state.

Vision

The 'vision' as presented, was a series of different objectives relating to the development of goats and sheep in the state. These are as listed below:

- To develop goat and sheep state farms as modern, automated, and well-equipped farms, with appropriate biosecurity management
- To conserve indigenous breeds of goat and sheep, viz., Jamunapari and Barbari goats; and Jalauni sheep
- To undertake special efforts for the conservation of the threatened Muzaffarnagri breed of sheep, and increase its population by 10% every year
- To increase production of carpet quality wool by 20% in 5 years through continued implementation of cross-breeding programme and expansion of the carpet zone
- To procure wool from the producers/ shepherds to enable fair returns to them
- To cover the carpet zone area with electrically operated shearing machines
- To increase the meat and milk production in goats through cross-/pure breeding, in accordance with the state's breeding policy for goats
- To introduce AI facilities for sheep and goat in UP

5.1.2 *Sheep and goat population in UP*

Unlike most other states in the country, UP witnessed a rise in the goat population by 5.1% between 2007 and 2012, although there was a dip in its sheep population by 3.3%. The sheep and goat population statistics for the state are provided in Table 5.9.

Table 5.9: Sheep and goat population in Uttar Pradesh (2007 and 2012) (numbers in lakhs)

Sl	Species/Year	2007	2012	Growth percent
1	Sheep	14.00	13.54	(-) 3.29
2	Goat	148.29	155.86	5.10
3	Total	162.29	169.40	4.38

5.1.3 *Breeding policy*

Important and recognized goat breeds in the state include Jamunapari and Barbari; there is also the Jaunpuri breed, but it is yet to be registered in the

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September 2015

national registry at NBAGR. Registered sheep breeds in UP include Muzaffarnagri and Jalauni.

The AHD, UP has formulated a breeding policy for sheep and goats in the state, the salient features of which are as follows:

Goat breeding policy

- Desi breeds (non-descript) are crossed with highly improved high yielding Jamunapari&Barbari breeds of goat
- In breeding tracts of indigenous breeds Jamnapari&Barbari, only pure breeding is propagated.

Sheep breeding policy

- To improve medium coarse wool (carpet quality) in the carpet zone in the state
- To cross-breed the local non-descript sheep with high quality rams of Bikaneri, Nali, Magra and Chokla breeds of Rajasthan
- To conserve the indigenous sheep breeds of Muzaffarnagri&Jalauni in their respective breeding tracts, propagating only pure breeding

5.1.4 Programmes for small ruminants and their coverage

The state is mostly only implementing central government funded schemes for sheep and goat development in the state. These include the following:

- IWIP (Integrated Wool Improvement Programme) funded by the Central Wool Development Board (CWDB), Jodhpur
- Goat farming and cluster formation scheme under the National Mission for Protein Supplementation (NMPS), as part of RKVY
- Ram, Buck and Boar Show under the National Livestock Mission (NLM)
- Training and capacity building programme under NLM

The financial allocations for each of the above programmes are as indicated in Table 5.10.

Table 5.10: Budget for small ruminant development programmes in UP

Sl	Name of the scheme	Year	Budget (INR lakhs)	
			Central	State
1	Integrated Wool Improvement Programme	2014-15	157.00	--
2	National Mission for Protein Supplementation (under RKVY)	2011-12	125.36	--
		2012-13	361.38	--
		2013-14	449.36	--
		2014-15	356.63	--
3	Ram, Buck, Boar Show (under NLM)	2014-15	13.50	--
4	Training and capacity building	2014-15	21.00	--

5.1.5 *Issues and challenges in promoting small ruminants*

Major issues and challenges cited in the presentation were mostly concerned with constraints being faced in implementation of current programmes; these are as follows:

- Lack of training facilities for sheep & goat breeders
- Lack of marketing facilities
- Electrical shearing machine are required for scientific and safe shearing
- Due to migration of sheep for six months, there is a need of few mobile vans in the carpet zone for providing health facilities to migratory flocks
- To maintain the carpet quality wool, sufficient numbers of Bikaneri rams are required

5.1.6 *Success Story*

The long-term and consistent measures undertaken by the AHD at improving the quality and quantity of wool available from sheep in the state, a journey which started some four decades ago, and resulted in declaration of the carpet zone, was shared as one of the most successful endeavours undertaken.

When the department established its first wool grading center and intensive sheep and wool development project, the local breed of sheep, which was black in colour, produced 100 gm of coarse black wool. This is when the cross-breeding programme started. Over the years, the flocks of black sheep have been 'converted' to white cross-breeds, producing long stapled and medium coarse wool, with average yield of 1 kg per animal. These interventions and its results have led to economic development in the area, and its declaration as a carpet zone.

5.2 *Aga Khan Foundation*

Sharing the approach and results from a project for improving goat productivity and rural livelihoods in Bahraich district, implemented by the Aga Khan Foundation UP, Mr Santosh Kumar Mishra shared the concept of the *Pashu Sakhi* model with the participants at the workshop, while also sharing the organisation's vision regarding the sustainability of *Pashu Sakhis*.

5.2.1 *Rationale for implementation of the Pashu Sakhi model*

A strong case was made out for adoption and implementation of the *Pashu Sakhi* model in the area:

- 70% households are involved in goat rearing – profitability severely constrained by high mortality and low goat productivity.
- Preventive and health care services, particularly around small ruminants were not available in the area



- Veterinary services were located at a distance and difficult to access when needed.
- Private veterinary services were expensive and beyond the reach of smallholders.
- Women, with key responsibility for goat rearing, found it difficult to access veterinary services on account of limited mobility

Accordingly, a community based preventive small ruminant health care system through developing a cadre of women *Pashu Sakhis* was initiated in 2012.

5.2.2 Implementation approach

The implementation approach was geared towards capacity building of *Pashu Sakhis* through a process-oriented approach, with intermittent provision of technical/ knowledge inputs, contact and sharing of experiences with peers, and confidence-building measures. The following were outlined as part of the project approach:

- Village or area identification (200-250 goats per *Pashu Sakhi*)
- Identification of literate or semi-literate women through village meetings
- Initial orientation of potential *Pashu Sakhis*
- Obtaining consent and final selection
- Five to six days of residential technical training including field level practical sessions
- Provision of a *Pashu Sakhi* kit, which was an iron box with a lock, and consisted of a pictorial reference book on IGMP; first aid medicines; basic tools and equipment; cotton and bandage
- Exposure and on-site field training
- Half yearly refresher training of 2-3 days each
- Regular monthly review and capacity building workshop, including experience sharing



5.2.3 Role and responsibilities of Pashu Sakhi

The primary role and responsibility of a *Pashu Sakhi* was provision of preventive veterinary care and first aid services to goat-keepers, and secondly providing assistance with generating awareness, facilitating adoption of IGMPs, and data collection/ reporting. Their responsibility charter included:

- To participate in annual livestock census
- To form women based self-help group of goat rearers in the village
- To raise awareness of goat rearers on improved management practices
- To follow annual animal management calendar – reviewed during monthly meetings
- To provide timely and affordable door to door preventive health care and first aid services
- To conduct household visits to assess and counsel on:

- Clean drinking water, feed and fodder management
- Housing (cleanliness, ventilation, sanitation, etc.)
- Breeding practices
- To maintain records and provide market support required by goat rearers

5.2.4 Institutional support system

There is a well-organized and supportive institutional structure in place, to enable *Pashu Sakhis* carry out their tasks with ease and under supervision of trained para-vets/ livestock field workers. The entire system consists of the following:

- A para-vet / Livestock Field Worker supporting 10 - 15 *Pashu Sakhis*;
- Training and capacity building
- On-site hand holding support on vaccination, deworming, first aid, etc.
- Record maintenance and guidance to address bottlenecks/ challenges
- Provisioning of a one-time kit
- Field level demonstrations
- Monthly task based incentive (for 2 years) for motivation and establishment
- Liaison with veterinary department for information exchange and support

5.2.5 Progress and results achieved

In two years since start of the project, 30 *Pashu Sakhis* have reached out to about 76% of the goat-rearing households in the project villages; provided first aid to 1,630 goats; vaccinated 1,558 goats; and deworming of 5,144 goats has been undertaken. As a result of the awareness drives, the number of households using mineral mixture, preparing feed, and doing organic composting has reached 60, 20 and 30 respectively.

5.2.6 Challenges and vision for sustainability of *Pashu Sakhis*

The presentation was concluded with a discussion on the challenges faced, particularly with respect to the financial sustainability of the model, and the organization's vision for the same.

Challenges

- Reduced interest in vaccination as mortality declines – need to constantly motivate the community regarding the importance of regular vaccination
- Need to diversify the basket of services offered by *Pashu Sakhis* to ensure a sustainable income (significant gap between current income earned and income aspirations of *Pashu Sakhis*)
- Curative services more lucrative than preventive services – need to ensure that *Pashu Sakhis* work within the agreed legal framework for community-based workers.
- Convergence with government programmes and schemes
- Facilitating bulk purchase of vaccines/ de-wormers directly from manufacturers (difference in wholesale-retail rates – additional income for *Pashu Sakhis*)
- Value chain studies to assess where improvements are required and can result in increased income.

Vision for sustainability

- Vaccination and De-worming
- First aid for small ruminant
- *Memna* Nursery (kid rearing) under process
- Flock rearing
- *Meganikhad* (organic composting)
- Input supply (feed, fodder, vaccine and dewormers)
- Breeding buck services
- Buck rearing for festivals
- Nucleus goat rearing to ensure quality of breed (under process)
- Goat insurance services (under process)
- Goat castration services (under process)

6. CONCLUDING SESSION

The concluding session of the day was facilitated by Ms Varsha Mehta, with the Principal Secretary, AHD - MP, Mr Prabhanshu Kamal, and the Joint Secretary (ANLM), DADF, GoI as the Co-Chairs. A summary of the ensuing questions, concerns and discussions held during the session is presented in the following paragraphs.

6.1 Preventive Veterinary Care Services

On the issue of vaccines and their supply, some farmers from Burhanpur who are keen on making goat-rearing their main occupation, requested that vaccines for goat diseases, such as ET and PPR, should be manufactured and supplied in vials containing smaller number of doses, so as to enable individual rearers to purchase and vaccinate their animals without any loss or wastage of vaccines (after opening, the unused vaccines have to be discarded because they lose their efficacy).

Rearers also mentioned facing a shortage of supply of vaccines, particularly seasonal ones like ET, and requested government assistance in this regard. After a prolonged discussion on the topic, it was concluded that for supply through the government system, requirement of vaccines should be communicated in advance to the local district-level official of AHD, with a copy of the letter to the state Directorate. Ideally, this should be done prior to the state Directorate's annual planning exercise. Further, the need for coordination between state and non-state actors at all levels (Block, district and state), and on a regular basis, was underscored.

Upgradation and enhancement of infrastructure available with the state government was also required, and highlighted during the discussions.

The matter of *Pashu Sakhis* and their operation within the state's statutory framework was given considerable importance and discussed at length. There was a broad agreement among the participating stakeholders that it was important to define the scope of services of *Pashu Sakhis*; register them with the local veterinary hospital; and bring them within the ambit of the Veterinary

Council of India Act, 1984. Citing the example of e-Vet services and *Go-Sevaks*, whose focus is on dairy animals, mainly cattle and buffaloes, it was shared that a similar arrangement may be extended to *Pashu Sakhis*, who are focused on goat, sheep and backyard poultry. It had been found that these categories of livestock were not being reached by the *Go-Sevaks*, or the mainstream veterinary service system.

The e-Vet system ensures that the treatment/ prescription is provided under the supervision of a registered veterinary practitioner, and in consonance with the existing legal framework for veterinary services. At the same time, it was also agreed that the trained *Sakhis* should be certified by a government-accredited institution based on a test of their knowledge, skills and competence.

6.2 Fodder and Nutrition Management

With changing land-use, and expansion of irrigated agriculture, and particularly in states like Madhya Pradesh, where a large percentage of the geographical area was designated 'forest' land, a number of issues and conflicts between competing uses were emerging; these issues required that the concerned stakeholders at the state and central government levels, discussed and resolved the issues in a manner that supported livestock-dependent livelihoods without adversely affecting the extent and condition of forests, or the forest ecosystem.

At the same time, the Chairs also emphasized that if small-ruminant based livelihoods were being promoted, it was necessary that their fodder and nutritional requirements were also given due importance and sufficient resources allocated for their development.

6.3 Housing and Hygiene Requirements for Small Ruminants

Although a number of government programmes with the objective of income enhancement of resource-poor households were involved in the distribution of goat and sheep units, the financial resources required for housing them were lacking/ not allocated. In Madhya Pradesh, the issue had been resolved through convergence with MGNREGS, through issuance of appropriate government orders, requiring that beneficiaries of goat/sheep units (from AHD) would also receive priority in assistance for goat housing under MGNREGS (from rural development department).

The JS (ANLM) requested all participants to consider construction of low-cost and eco-friendly goat sheds, as had been demonstrated under the SAPPLPP-supported project in Khargone district of MP, where AKRSP(I) had designed such a shelter at about 50% of the budget allocated under MGNREGS. It was also shared that the design and details had been shared with the MoRD (MGNREGA Division), and the JS (MGNREGA) had written to all the Special Chief Secretaries/ Principal Secretaries/ Secretaries Rural Development (in charge of MGNREGA) to consider adoption of the same if found suitable, and wherever such material is locally available.

It was also suggested that the number of units (goat shelters) approved under the MGNREGS should be increased, and the process of approval of applications by the concerned Gram Panchayats be expedited.

6.4 Breeds and their Conservation

The challenges in conservation and improvement of indigenous breeds were discussed, and concerns highlighted; important aspects to consider in this regard were mentioned as follows:

- Characterization, recognition and protection of indigenous breeds
- Enumeration of livestock population by breed
- Due care and attention to breeds in government goat/sheep distribution programmes
- Support for collective breed conservation initiatives in the native breeding tracts

It was also proposed that private farms should be recognized by the government as breeding centers for supply of bucks under state-supported programmes.

6.5 Marketing of Small Ruminants

The possibility of using the GoI initiated electronic sale-purchase platform for livestock, through the Kisan portal (www.mkisan.gov.in), was mentioned by the JS(ANLM).

Shri Deepak Patidar of Ekta Agronomic shared his experiences with use of mobile-based applications such as WhatsApp and Facebook for facilitating sales and purchase in the goat sub-sector, stating that transparency and quality assurance were tantamount in sustaining electronic transactions in the sector.

The session concluded with closing remarks from the JS(ANLM), GoI and the Principal Secretary (AHD), GoMP.





**Proceedings of National Concluding Workshop on
Strengthening Small Ruminant Based Livelihoods,
New Delhi, January 2016**



1. SUMMARY

In furthering its objective of building knowledge and capacities, and influencing policy and programmes aimed at promoting smallholder goat and sheep-rearing, SA PPLPP once again brought together a cross-section of stake-holders under one roof on 12 January, 2016, in collaboration with the Department of Animal Husbandry, Dairying and Fisheries, Government of India, at a national workshop on “Strengthening Small Ruminant Based Livelihoods”, in New Delhi. The workshop was attended by over 70 delegates, representing 12 states and UTs, and 35 organizations, who deliberated on the issues and policy recommendations which emerged in the course of national and regional consultations across the country in the course of a year. The workshop ended with 12 *Pashu Sakhis* from Madhya Pradesh and Rajasthan being awarded honorary membership of the prestigious Goat and Sheep Farmers’ Welfare Association.

Speaking on the occasion, Mr Shyam B Khadka, FAO Representative in India, stressed on the importance of small ruminants in dryland farming and shaping climate resilient livelihoods. He said that goats and sheep offered an effective risk mitigation strategy to small and marginal farmers, especially in rainfed regions, and were an integral element of dryland ecosystems. While underlining the importance of community animal health workers, he said that in replicating and upscaling the models demonstrated by SA PPLPP, the centrality of women in the success of the pilots should not be forgotten.

MsPurvi Mehta Bhatt, Senior Advisor and Head – South Asia (Agriculture) at the Gates Foundation, said that livestock, particularly small ruminants, is an extremely important sub-sector of agriculture, adding that 83% of India’s livestock is found in the mixed farming system, where crops and livestock are reared together. Stating that the Foundation was one of the largest development donors in the world, she mentioned that they had pledged four large investments in small ruminant sector in the year 2015, including Project MESHA, to be implemented by the Aga Khan Foundation (India). Sharing that the design of the project had benefitted immensely from SA PPLPP, she said that the benefit of a programme such as SA PPLPP is seen in terms of its spill-over effect in influencing donor strategy and programme investments.

Chief Guest Dr Suresh Honnappagol, Commissioner, Animal Husbandry, GoI, said that we were deliberating on the importance of “life stock” for sustaining future life, which requires healthy animals, good germplasm and good marketing networks. Stating that market linkage development is a key concern, he shared that the Department of Agriculture and Cooperation is contemplating development of a computer-based platform, called the National Agriculture Market, which could also benefit development of livestock markets. Congratulating the organizers of the workshop and appreciating the importance of such consultations, the Commissioner suggested that it would be useful to develop a comprehensive document on management practices of goat and sheep husbandry, covering aspects pertaining to health, biosecurity, breed, marketing, and so on.

In the course of the day, delegates shared outcomes of the four regional consultations held during the year; results and learnings from SA PPLPP pilot initiatives in Madhya Pradesh and Rajasthan; issues and challenges in development of small ruminant based livelihoods in different states; and emerging programmes aimed at developing small ruminant based livelihoods. An interesting finding from the SA PPLPP projects in MP was that the return on investment in the backyard poultry pilot project was more than three times that of the goat-rearing pilot, starting with similar investments in both pilots. Over a two-year term, the goat pilot had resulted in doubling of the goat population, and a 1.6 times return on investment from sale of goats; on the other hand, the poultry pilot had resulted in a 5.8 times return on investment, not counting the intangible gains in terms of empowerment of women, improved access to preventive veterinary services, convergence with local governance institutions, and so on. A major learning emerging from implementation of the pilots was the significance of investment in sustained capacity-building of *Pashu Sakhis* and livestock-keepers, and the need for combining services for goats with poultry or other livestock, for financial sustenance of the *Pashu Sakhis*.

Wrapping up the deliberations of the day, Mr Sanjay Bhoosreddy, Joint Secretary (National Livestock Mission), DADF, thanked all the delegates for their enthusiastic participation, and hoped that the deliberations among the stakeholders would continue in different forums and locations. Under his leadership and zeal, the department had facilitated organization of two national and four regional consultations within a year, bringing together delegates from the government, non-government and private sectors, highlighting the significance of small ruminants and poultry in poverty reduction, and achieving food and nutrition security.

The Minutes of all the previously held workshops (actionable points) were shared in the course of the day and are appended as Annexures 3-7. Presentations made during the workshop are available on the SA PPLPP website (www.sapplpp.org).



Annexures





Background Paper

National Workshop on Strengthening Small Ruminant Based Livelihoods¹**January 16, 2015****UNDP Conference Room, 55 Lodhi Estate, New Delhi****1. INTRODUCTION**

Small ruminants contribute substantially to household livelihood and nutrition security; by helping resource-poor families tide over the losses in agriculture, and the adversities faced by them in the absence of adequate health and social security systems, small ruminants also assist them to effectively hedge the debt traps that they are susceptible to find themselves in. An estimated 27 million households are rearing over 200 million small ruminants in the country. Whereas small and marginal farmers constitute over three quarters of the farmer households and own only a quarter of the agriculture land, statistics published by the Government of India (GoI) indicate that around 70% of the goat and sheep in the country are reared by small and marginal farmers and landless labourers (GoI, 2007)¹; evidently, the spread of small ruminants is far more equitable than the ownership of agriculture land in the country.

Livestock, and goats in particular, are among the most indispensable and readily liquidated assets owned by the poor, thus forming a core of their livelihood and risk management strategies. For the same reason, animal mortality and morbidity could prove to be catastrophic to the lives and livelihoods of the poor. It has been found that areas with low cropping intensities (higher percentage of current fallows) tend to have a higher percentage of small ruminants as percent of total livestock population. However, districts with low cropping intensities, as well as low percentage of small ruminant population, have been found to be the worst off in terms of poverty; field findings corroborate the fact that small ruminants are a reliable pathway out of poverty.

Notwithstanding the rapid economic growth witnessed by India in the previous decade, the number of poor people in India in 2011-12² was conservatively estimated to be approximately 270 million, of which 80% reside in rural areas. The poor constitute about 26% of the total population in rural areas. Whereas some states are notoriously poor (e.g., MP, Bihar, UP, Rajasthan), there are some other states with overall lower percentages of poor, but include the poorest pockets in the country, for e.g., the Dangs district in Gujarat has the highest percentage of poor in the country (88.4%); other examples include Gadchiroli and Bid in

¹ Co-organized by the Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India, and the South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of the Food and Agriculture Organisation of the United Nations and National Dairy Development Board, India

² As per the Tendulkar methodology

Background Paper: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

Maharashtra (65% and 55% poor respectively), Raichur and Haveri in Karnataka (59% and 55% respectively), among others.

Evidently, there is an uneven spread of the benefits accruing from economic growth, which may be on account of the nature and sectoral composition of the growth, or because of social, political and economic barriers in accessing productive assets, skills and services. This means that sustainable poverty reduction cannot be achieved without active targeted public interventions that can navigate and guide public and private investment in sectors with most potential for generating rapid poverty alleviating growth. It has been estimated (FAO, 2012)ⁱⁱ that the livestock sector in India has the highest multiplier effect in terms of poverty reduction, as compared with crops, fruits and vegetables, manufacturing and services.

The livestock sector alone contributes nearly 25.6% of Value of Output at current prices of total value of output in Agriculture, Fishing & Forestry sector. The overall contribution of Livestock Sector in total GDP is nearly 4.11% at current prices during 2012-13. Goats and sheep together constitute 40% of the country's livestock population, with the total numbers having declined by 9% and 4% respectively in the case of goats and sheep over the last five years (19th Livestock Census, 2012).

Despite it being a key driver of the rural economy, and a crucial component of the poor's livelihood portfolio, the small ruminant sector as a whole has received little attention from policy-makers and development practitioners. The institutional set-up of the animal husbandry department; low budgetary allocations for animal husbandry and livestock development, including in support of development of forward and backward linkages; lack of investment in research and development; absence of policy and regulatory mechanisms for market infrastructure development (for livestock); and lack of attention to developing systems for utilization of the by-products (viz., milk, leather and wool), are all testimony to the denial of the sector its due.

Under the extensive and semi-intensive management systems practised for goat and sheep rearing in the country, there is little, if any, competition between animals and human beings for scarce food grains; the ruminants' feed base comes primarily from crop residues and wastelands, thus converting non-edible material into highly valuable and protein-rich food, and providing an effective pathway to poverty alleviation and economic development on a large scale.

2. SMALL RUMINANT HEALTH AND VETERINARY CARE: CHALLENGES AND OPPORTUNITIES

Whereas livestock keepers are persistently faced with high mortality, poor productivity and sub-optimal returns; the state animal husbandry departments are also under-staffed and ill-equipped to support them.

The main challenges confronting the animal health sector include:

- Grossly inadequate infrastructure, including for cold storage and distribution of vaccines
- Severe lack of technically qualified and equipped personnel

Background Paper: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

- Inefficient and inadequate mechanisms for disease surveillance and reporting, which delays appropriate interventions in response

India had a total of 10,094 veterinary hospitals and polyclinics and 19,531 veterinary dispensaries as on April 1, 2012³. Most of these have poor infrastructure and equipment. Further, technical and qualified human resources required are grossly inadequate, at about 37% of the requirement, to support health programmes for the massive livestock population (approximately 25,000 veterinarians in government sector as against the estimated requirement of about 67,000) (DADF, MoA, 2013)ⁱⁱⁱ. As constrained as the Animal Husbandry department is by the lack of deployment of human resources, it is also hampered by the absence of an effective outreach mechanism for engagement with livestock keepers. Delivery of vaccination and other preventive veterinary care services is further constrained on account of insufficient budgetary allocations, inadequate travel allowances for extension workers, and lack of equipment and/or resources for maintenance of supply cold chains up to the point of delivery. The resources at the disposal of the department and the livestock owners are therefore prioritised for use in dairy animals, which are considered more economically remunerative.

It is estimated that a 10% mortality in kids results in a 38% reduction in net profit from goat rearing (Vihan, 2010)^{iv}. It is a well-known fact in the sub-sector that a number of the most prevalent diseases and health conditions in goats are of a preventable nature, viz., worm load, indigestion and diarrhoea, cough and cold, heat stress, and malnutrition; the community-based animal health worker model has been tested by NGOs and state animal husbandry departments in Rajasthan, West Bengal, Bihar, Uttar Pradesh, and Chhattisgarh, among others. Across various project locations, goat kid mortality has been estimated to be in the range of 15 – 40%, and adult mortality ranges from 10 to 30%; undoubtedly, any intervention aimed at reducing mortality in goats would result in significant gains in productivity and income of livestock keepers.

Findings from an ongoing SA PPLPP field pilot on goat-based livelihoods in Madhya Pradesh, being implemented at Jhirniya Block in Khargone district by the Aga Khan Rural Support Programme (India), are quite encouraging. It is found that adult goat mortality reduced from 37% to 6.7% over a period of six months through basic interventions in preventive veterinary care, improved housing, feeding and management practices; similarly, goat kid mortality reduced from 32% at baseline to 2.1% in October 2014.

In Chhattisgarh and West Bengal, the state Animal Husbandry departments have adopted the concept of community based animal health workers, known by the title of *Pashu Mitra* and *Pashudhan Mitra* respectively, and the approach adopted by these states is showing the way for replication of the model at scale. In October 2014, the National Rural Livelihoods Mission incorporated the *Pashu Sakhi* Model in its implementation strategy, and issued a Livestock Advisory to the effect to all the State Rural Livelihoods Missions.

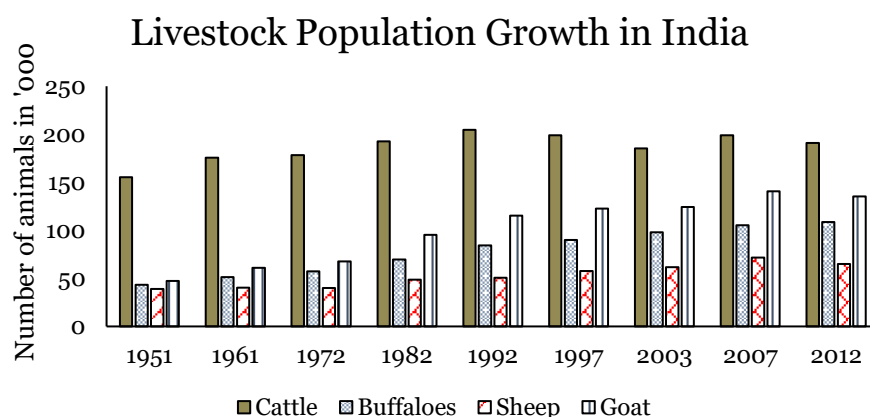
³ In addition, as per the BAHS, 2011, there were a total of 24,858 Veterinary Aid Centres/ Mobile Dispensaries in the country.

Background Paper: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

In a World Bank-supported agriculture project in Maharashtra, which is also focusing on development of the goat value chain, 355 Lady Link Workers (LLWs) have so far been trained (by Heifer International) and are working in 6 project districts, overcoming constraints through issuance of licenses for selling mineral mixture concentrate, and other income-earning opportunities. The LLW deliver basic services like deworming, poultry vaccination to 4-5 farmers per week in one or more villages, and earn a minimum of INR 1200 per month (part-time). Although travel time is a limitation for many, some of the more entrepreneurial LLW are working in up to 6 villages; during a recent visit by the Bank's Livestock Specialist, it was found that the highest earner reported an income of more than INR 15,000 annually, and had been recognized by the community for the vital role she played. The program has been a livelihoods lifeline for widows particularly in suicide affected communities: in Yavatmal (another project district where farmer suicide rates are amongst highest in the country) 20 of the 50 LLW supporting the high value goat farmers are widows who reported incomes of INR 200 per day.

3. FEED AND FODDER RESOURCES FOR SMALL RUMINANTS

The livestock sector in India is under transition. There is diversification in agriculture to cash crops and a resultant reduction of crop residue suitable for fodder, reduced availability of common lands, closure of both common lands and forest lands for grazing, and an increasing dependence on wage labour and migration. The composition of livestock is also changing in favour of small ruminants and increasing commercialization.



The extent of common lands in India is currently estimated at 22.80 per cent of the total land mass (this includes seven out of the nine land-use categories⁴). However, on account of increasing encroachment, the extent of available common lands may be much less than the estimated 12%; further, the lands have become less productive because of neglect and overgrazing. Grazing based livestock production is crucial to the livelihood security of a diverse range of people, from the landless and socially marginalised to those with access to land and other resources. A survey of CPRs in the sub-humid to arid areas of India concluded that 69% of households were grazing their livestock on commons and 23% of them collected fodder from the commons. All in all 37-68% of the annual fodder

⁴ Forest lands, culturable waste, permanent fallows, permanent pastures and other grazing lands, barren and uncultivable land, land under miscellaneous trees and crops.

requirement for livestock was sourced from commons (Kishore, 2012)^v. The extent of CPR contribution to livestock rearing was found to range between 33% and 50% of the fodder requirement for bovine livestock populations, whereas small ruminants (goat and sheep) almost entirely subsist on open grazing on CPRs.

However, common lands are under increasing pressure of encroachment, privatization and allotment for purposes other than those of use to the local community. Loss of designated grazing lands, closure of forest areas, and diversion of common lands for other purposes has intensified pressure on available resources, leading to their degradation. All of the above factors have adversely affected small ruminant rearing, which used to be a highly productive low-input system dependent on these lands for fodder and grazing resources. There has also been an erosion of synergies between agriculture and animal husbandry due to an interplay of various factors, making small holder livestock keepers' livelihoods more vulnerable.

Against the backdrop of increasing environmental degradation and un-favourable agriculture production systems, village-level community institutions for the management and protection of common property resources and dependent livestock production systems provide an opportunity for sustainably enhancing the livelihood security of resource poor rural populations. Different arrangements for managing CPRs range from free open access grazing post monsoon, to cut and carry systems and rotational grazing; the viability of various options depending on the context - the extent of commons available, the potential for grazing and harvest from forest lands, the scale and fodder produce from CPRs. Livestock holding of the village, extent of agriculture lands and availability of crop residue, and external grazing pressure.

In a majority of instances where projects have succeeded in developing common lands for fodder, the preferred CPR management regime was found to be controlled grazing post Diwali. This helped in tiding over the critical winter season till the wheat harvest towards the end of March. A project of Seva Mandir in Udaipur, Rajasthan, reported that the cut and carry system was a preferred option by the tribal community to tide over fodder scarcity by restricting open grazing, in spite of facing regular fodder shortage and the high labour investment involved in cutting grass. Even where the CPR provided fodder for a relatively short period of the year, this was the most critical time period for marginal and small farmers to sustain their livestock. In addition, agencies such as PRADAN in Odisha have developed a nutritious local feed supplement called *Bokashi* from locally available grains and material.

Investments in rehabilitation and regeneration of CPRs are a valuable tool for increasing livestock production and productivity, as well as contributing to poverty reduction.

The main challenges in provision of adequate and quality feed and fodder for the livestock are summarized below:

- While the number of livestock is increasing, the grazing lands are diminishing, and area available for fodder cultivation is limited

- Breakdown of traditional community institutions and structures for management of commons
- Diversion of crop residues for other industrial use; diverse uses of agriculture crop residues (paper industry, packaging, etc.) which can be used as feed/fodder have widened the gap between demand and supply of feed and fodder
- Decline in the area used, over the last 30 years, for cultivation of coarse cereals, which were also used as fodder for livestock
- With the advent of 'improved' harvesting technology, substantial amounts of crop residues are burnt by the farmers after harvesting main crops like wheat and paddy
- Wide gap between the production/availability and requirement of improved fodder seeds

Under the current development paradigm, there is an urgent need to revisit land use, management and development policies, as well as explore alternatives for meeting feed and nutrient requirements of small ruminants through measures that are non-competitive with human food and consumption needs.

The National Livestock Mission (NLM) provides a window for development of feed and fodder resources. The Sub-Mission on Feed and Fodder Development under NLM, is designed to address the problems of scarcity of animal feed and fodder resources, and focuses on increasing both production and productivity of fodder and feed through adoption of improved and appropriate technologies best suited to specific agro-climatic regions in both arable and non-arable areas. To this end the following components have been included in the sub-mission:

- Fodder production from non-forest wasteland/rangeland/grassland/non-arable land. Financial assistance ranges from Rs 100,000 per hectare to Rs 30,000.
- Fodder production from forest land up to a maximum assistance of Rs 50,000 per hectare.
- Cultivation of Coarse grains and dual purpose crops to be operated under the National Food Security Mission.
- Fodder seed production/procurement and distribution.
 - (a) Distribution of hand driven chaff cutters.
 - (b) Distribution of power driven chaff cutters.
 - (c) Establishment of high capacity Fodder Block making units.
 - (d) Distribution of low capacity, tractor mountable, Fodder Block making units, hay-baling machines/reapers/forage harvesters.
 - (e) Establishment of silage making units with financial assistance ranging from Rs 50,000 to Rs 100,000 depending upon the metric ton capacity.
 - (f) Establishment of bypass protein making units.
 - (g) Establishment of area specific mineral mixture/feed pelleting/ feed manufacturing unit.
 - (h) Establishment/modernisation of Feed testing laboratories.
- Setting up of Regional Fodder Stations
- Training and Human Resource Development

4. LONG-TERM MEASURES FOR SMALL RUMINANT-BASED LIVELIHOODS DEVELOPMENT

4.1 Markets

Unlike agriculture markets, which are characterised by participation of the state in the production, procurement and distribution of food grains; regulation by way of licensing and so forth, and development of infrastructure support, livestock markets are almost completely bereft of any state intervention – this, despite the fact that the poor are more dependent on markets for returns from livestock than agriculture, which is mostly of a subsistence level in the case of the poor. Livestock markets are characterized by intermediaries, contractors and commission agents, and there is no mechanism to check unfair trade practices. Markets of two classes are where livestock owners and sellers come in contact with the market economy:

- (i) Exclusive animal and/or bird markets on pre-determined days of every week, usually at the Block or Tehsil level; and
- (ii) Allocated sections for livestock in weekly markets (*Haats*), which include all kinds of products, usually held at the Panchayat level.

Although locations for livestock markets are earmarked and auctioned by the local PRIs, the markets are very poorly developed, with little, if any, infrastructure in place. Most often, the markets are just sizeable yards, frequently uneven, without any kind of construction, and seldom with a fence or a boundary wall. Auctioning of the yards happens on an annual basis by the concerned PRI, with the highest bidder gaining the rights to management of market operations and collection of user fees. Most of these markets function outside of the ambit of government regulations.

A study of the small ruminant market chain suggests that the markets have developed in a manner that puts the livestock keeper at a disadvantage, and are structured in favour of intermediaries, to the disadvantage of the consumer, producer, and the by-products markets. Transactions in the livestock trade are non-standardised and one comes across numerous unfair trade practices because of the ad-hoc nature of the market; animals are sold on the basis of a visual estimation of their weight, age and appearance. Whereas transactions remain unrecorded and unreported, there is virtually no value addition that takes place along the value chain from producer to consumer, even though the price of the commodity keeps increasing at each stage along the channel. The need for value chain development of the meat and by-products industry has often been articulated, but there is limited experience within the country in this area.

4.2 Breed

Of the 144 registered breeds of livestock and poultry in India, there are only 39 breeds of sheep and 23 of goats. Cross-breeding of animal species was introduced to enhance production of milk, wool, and meat production; the official breeding policy recognized crossbreeding of only non-descript varieties (breeds) with exotic breeds as a tool for improving productivity, and recommended limiting the exotic inheritance to 50% only. Although intended only for hilly tracts and resource rich areas with a pre-ponderance of non-descript animals, the resultant economic gains led to its indiscriminate adoption in all areas, including with well descript

Background Paper: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

and indigenous breeds. The majority of sheep and goats in India belong to ‘un-described’ (usually referred to as non-descript) breeds or they are ‘local’ animals not necessarily belonging to a distinct, ‘recognized’ group or breed.

Given the structure of the market and its operations, it is found that the best quality bucks end up in abattoirs, resulting in non-availability of good quality breeding bucks and rams in sufficient numbers. There have been limited attempts, if any, at either government or community levels, for identification, recognition and conservation of germplasm of superior bucks. The sustainable use and conservation of animal genetic resources is accorded low priority in developing agricultural, environmental, trade, human and animal health policies.

The focus on ‘breed improvement’ through cross-fertilization with superior and recognized breeds has produced mixed results, and there is a need to complement these measures with appropriate interventions for recognition of indigenous breeds, and their conservation in native breeding tracts. The concept of Breeders’ Associations has often been suggested, but there has been no systematic attempt undertaken in this direction.

4.3 Livestock insurance

For promotion of the livestock sector and livelihoods based on livestock-rearing, interventions at risk reduction are necessary along with providing more effective steps for disease control and improvement of genetic quality of animals, to minimise eventual losses incurred by the livestock keepers. As with other areas, investments in livestock insurance too are disproportionately skewed in favour of dairy animals. Community-based insurance models have been developed by organisations such as Ibtada, PRADAN and The Goat Trust, among others; however, up-scaling and replicability of the models requires considerable investment in building local human resource capacities.

5. CONCLUSION

It has been estimated (by FAO) that the livestock sector in India has the highest multiplier effect in terms of poverty reduction, as compared with crops, fruits and vegetables, manufacturing and services. The extensive and semi-intensive management systems offer minimal competition for scarce food grains, thus providing one of the most effective pathways to poverty alleviation on a large scale. The importance of goats and sheep for the poor in rainfed areas cannot be overemphasized.

The potential returns from small ruminant rearing are not forthcoming because of underdeveloped and poorly serviced production and marketing systems, characterised by disproportionate investments in development of the dairy vis-à-vis small ruminant sub-sectors, inability of small holder livestock keepers to access veterinary care services, and virtual absence of any kind of regulatory mechanisms in the establishment or management of livestock markets in the country. Other key challenges that plague the sector are high adult and kid mortality rates among animals, inability of the livestock keepers to access mainstream (government) veterinary care services, lack of access to credit and other financial services, including insurance. The returns to rearers can be multiplied several times by

incremental improvements in production systems, including housing and health care for animals.

SA PPLPP field pilots in Madhya Pradesh and other initiatives around the country (by NGOs such as PRADAN, BAIF, Ibtada, and others) have conclusively demonstrated the high-impact and magnitude of consequences of some modest and low-cost interventions, including community mobilization, and capacity-building of community based animal health workers. There is an urgent need for the learnings from these experiments to be distilled and adopted on a larger scale by the state animal husbandry departments.

ⁱ Government of India. Undated. Department of Agriculture and Cooperation Input Survey 2006-07, Ministry of Agriculture, New Delhi

ⁱⁱ FAO. 2012. Livestock Sector Development for Poverty Reduction: An Economic and Policy Perspective – Livestock’s Many Virtues, by J. Otte, A. Costales, J. Dijkman, U. Pica Ciamara, T. Robinson, V. Ahuja, C. Ly and D. Roland-Holst, Rome, pp.61.

ⁱⁱⁱ DADF, 2013. Annual Report 2012-13, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India

^{iv} Vihan, V.S. 2010. Diseases of Small Ruminant, Satish Serial Publishing House, New Delhi

^v Kishore, K. 2012. Livestock Futures. The Need to Look at Alternatives. Paper presented at the Livestock Futures Conference held in Bonn, 6-8 September, 2012.



Annexure 2-A

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List of Participants: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

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List of Participants: National Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi, 16-17 January, 2015

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Annexure 2-B

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Jaipur 23 May 2015 List of Participants

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Annexure 2-C

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar 24 July 2015 List of Participants

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64.	Margdarshak	Mr Mehdilal	Kanya Prisar Road Gangapur, Ambikapur, District Surguja, Chhattisgarh	Email: margindia@yah oomail.com
65.	Odisha Livelihoods Mission (OLM)	Dr RN Pradhan, Consultant	Panchayati Raj Department Government of Odisha SIRD Campus, Unit VIII, Bhubaneswar 751012	Mobile: 9238583899
66.	PRADAN	Mr Rahul Pathak	2nd Floor, Narsaria Complex, Jashpur Road, P.O. Gumla – 835 207, District Gumla, Jharkhand	Email: Rahulpathak@p radan.net Mobile: 7091132365
67.		Mr Ajit Naik	At & P.O. Suakati – 758 018, District Keonjhar, Odisha	Email: ajitnaik@pradan .net Mobile: 9437647112
68.		Mr Purusottam B Dalai	Budaguda Road, P. O. Nuasahi - 762 103, PS: Balliguda, District Kandhamal Odisha	Mobile: 9438139264
69.	Regional Centre for Development Cooperation (RCDC)	Ms Gayatri Harichandan	Plot no: HIG - 26, K-6 Housing Scheme, Phase - II Kalinga Vihar, Bhubaneswar – 751019, Odisha	Email: redcbbsr@bsnl.i n, redcbbsr@gmail. com Phone: 0674- 2475410 Mobile: 9437929834

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July, 2015

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74.		Mr Kailash Chandra Dash		Email: Kailash@redcin dia.org
75.		Mr Amar Kumar Gouda		Email: akgouda@gmail.com Mobile: 9437233593
76.		Mr Jagannath Chatterjee		
77.	Samagra Seva Kendra	Mr Chhedi Prasad	PO Barachatti, Distt. Gaya (Bihar)	Email: samagrasedvaken dra@rediffmail.com
78.	Sambandh	Mr Ipsit Kr Parida	Plot No-472/756, At-Saradeipur, PO-Uttara, Bhubaneswar, Odisha 751002	Email: ipsitparida@gmail.com Mobile: 9938798427
79.	Sanmana	Mr R.S. Mohanty		
80.	Sevavrata	Mr Birendra Kumar Mondal	Murshidabad, West Bengal	Mobile: 9734072669
81.	Society for Management of Information, Learning and Extension (SMILE)	Dr Basudev Sunani	Veterinary Officers Training Institute (VOTI) campus, Laxmisagar, Bhubaneswar	Phone: 0674-2577965 Mobile: 9437327732
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83.		Ms Sheila Koyyana		Email: skoyyana@sapplpp.org Mobile: 9810354040
84.	Srijan Foundation	Mr Swapna Manna, Secretary	106, Bijay Enclave, Heerabagh, Hazaribag-825301	Email: srijanfoundation@gmail.com Mobile: 9431141106

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhubaneswar, 24 July, 2015

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87.		Mr Biswa Mohan		Email: onniseabbsr@gmail.com
88.		Dr Satya Narayan Pande		

Annexure 2-D

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru 31 August 2015 List of Participants

Government Institutions

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1.	Central Frozen Semen Production and Training Institute	Dr Vinod Bhatt, Director	Hesarghatta, Bangalore 560088, Karnataka	directorcfspiti@gmail.com Phone: 080-28466106/7
2.	Central Poultry Development Organisation (CPDO)	Dr N Rajeswara Rao, Director	Hesarghatta, Bengaluru 560088, Karnataka	cpdosr@yahoo.com Mobile: 9243442366
3.	Department of Animal Husbandry and Veterinary Services, Karnataka	Dr NS Parameshwar JD (SS)	Hesarghatta, Bengaluru, Karnataka	
4.		Dr KV Halagappa, JD (SS)	Biruru	
5.		Dr BS Jambagi, JD (SS)	Dharwad, Karnataka	
6.		Dr Maheshwar Gowda, DD Vigilance		
7.		Dr Amaranath, Deputy Director (SFDA)		
8.		Dr Rajanaik, Deputy Director (CSS)		
9.		Dr Shivashankar Murthy, Deputy Director (Sheep & Poultry Development)		
10.		Dr M Prasad Murthy, DD Mysuru		
11.		Dr TC Dharmappa, DD, Hassan		
12.		Dr T Tippeswamy, Deputy Director	Dakshina Kannada	
13.		Dr C Nagaraj, Dy Director,	Kodagu	
14.		Dr R Ramachandra,	Chamarajanagar	
15.		Dr Karlgiar, Dy Director	Kalaburgi	
16.		Dr Rajshekar, C, Dy Director	Yadagiri	
17.		Dr MB Devaraja, Dy Director	Ramanagar	
18.		Dr Raghuramegowda, Dy Director	Kolar	
19.		Dr Shivaram, Dy Director	Chikkaballapur	

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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20.	Department of Animal Husbandry and Veterinary Services, Karnataka	Dr RM Gowda, AD (Hatchery)	Technical Cell/Secretariat	
21.		Dr Raghav, Additional Director, Technical		
22.		Dr Narasimaih, Additional Director, SFDA		
23.		Dr Gurudhar, Additional Director, KDP		
24.		Dr Janaki, Additional Director (Plan-I)		
25.		Dr Aswath Narayana Shastri, Additional Director, QCPF		
26.		Dr Sudnaresh, Additional Director, Vigilance		
27.		Dr Udupa, Additional Director, Dairy		
28.		Dr Lakshminarayana, Additional Director, KLDA		
29.		Dr Ramesh Rao, Additional Director, RPES		
30.		Dr Gayathri, Additional Director, ADSS		
31.		Dr Jayashri, Additional Director, ADSS		
32.		Dr Umadevi, Additional Director, PDDL		
33.		Dr Channakeshwa, Additional Director, Call Center		
34.		Dr GR Mamatha, V.O.(Hatcheries)		
35.		Dr MR Radha, VO (CSS)		
36.		Dr Prashanth, VO(Development)		
37.		Dr TM Ramesh, VO(RKVY)		
38.		Dr Jalajakshi, VO (Sample Survey)		
39.		Dr Nandini, VO(KLDA)		
40.		Dr Banappa VO(Farms)		
41.		Dr AS Veena, VO(SCLD)		

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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50.		Dr N Somashekar		
51.		Dr Krishna Reddy		
52.		Dr C Nagaraja, DD, AH&VS		
53.		Dr Sujaya, VO(RPES)		
54.		Dr C Veerabhadraiah, DD, Sheep Breeding Farm, Dhanagar		
55.		Dr R Kedawdaram, AD, Sire Evaluation Cell	Hebbal, Bengaluru-24, Karnataka	
56.		Dr Benni B	Hospet	
57.		Dr Mohan Kumar KM, VO, KSWDC		
58.		Dr TG Veera Nayak, AO, KSWDC	Raichur	
59.		Dr L Umesh, VO, KCPF		
60.		Dr SP Lokesh, VO, VD, Konaghatta		
61.		Dr S Narayan, VO, VH	Devanhali	
62.		Dr AT Kolkar, VMS,	Hebbal	
63.		Dr MK Manjunath, VO	Jadigenhally	
64.		Dr Anil Kumar, VO Polyclinic	Devanhali	
65.		Dr Uma CA, Vet Officer	Devanhalli	
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List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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70.	Minister of Law & Parliamentary Affairs and Animal Husbandry, Karnataka	Sri TB Jayachandra, Hon'ble Minister	Room No. 404, 4th Floor, Vikasa Soudha Bangalore 560001	prs-ahf@karnataka.gov.in Phone: 080-22353977, 22034109
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75.	Institute of Animal Health & Veterinary Biologicals	Dr SM Byre Gowda, Director	Bellary Road, Sanjaynagar, Bengaluru-560024, Karnataka	Phone: 080-23411502
76.	Karnataka Livestock Development Agency	Dr Krishnareddy, Deputy Director	Vishweshariah Mini Tower, PB No. 5386, Dr. Ambedkar Veedhi, Bangalore	
77.	Karnataka Sheep and Wool Development Corporation Limited	Sri Pandithrao Chidri, Chairman	Hebbal, Bangalore 24, Karnataka	Phone: 080-23414295, 23413294
78.		Dr KM Mahmmmed Zafrulla Khan, Managing Director		kswdcs@gmail.com Phone: 080-23414295/23413294
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80.	KVC	Dr J Jaganath, Joint Director		

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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85.		Dr Khadri, Assistant Director		
86.		Dr A Kushalappa, Assistant Director		
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88.		Dr MV Awosaig, Assistant Director	Vijaynagar	
89.	Sheep Board, Karnataka	Dr BV Murthi, Assistant Director	Dharwad	
90.		Dr CB Megero, Assistant Director		
91.		Dr Rajeev, Assistant Director	Haveri	
92.		Dr Prakash, Assistant Director		
93.		Dr Sodonadgi, Assistant Director		
94.		Dr Nagaraja, Assistant Director	Davanagere	
95.		Dr MN Suresh, Assistant Director	Hassan	
96.		Dr MG Ramesh, Assistant Director	Shimoga	
97.		Dr E Thappaswamy, Assistant Director		
98.		Dr Keergannavaih HB		
99.	Telangana State Sheep and Goat Development Corporation	Dr B Rangaiah, Asstt Director (AH)	Hyderabad, Telengana	tssheepfede@gmail.com Mobile: 9052469699
100.		Dr Y Thirupataiah, Managing Director		tssheepfede@gmail.com Mobile: 9989998046

Department of Animal Husbandry Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare (DADF)

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109.	Dina Sundar	Mr James		Mobile: 9449871854
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111.		Ms Anjanamma		Mobile: 9164170764
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List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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121.	Inter corporation	Dr. C.K. Rao	222, sathya Sai Enclave, Secendrabad 500009, Telangana	raoveni@gmail.com Mobile: 9989886982
122.	Janajagran	Mr Sanjay Upari	20, Milkman Street Camp Belagavi, Karnataka	sanjayupari@gmail.com Mobile: 9448634361
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125.	Kannada Prabha	Mr A Veeramani		a.veeramani@gmail.com Mobile: 9611105467
126.		Mr Shivakumar		Mobile: 9741114153
127.	KPN	Mr Sudhaicas		Mobile: 9986521420
128.	Lokee Foundation	Mr Lokesh Gowda	Near Cresent School, Sidkaghatta, Distt. Chickballapur, Karnataka	Cvlokesh1@gmail.com Mobile: 9342449969
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130.	MITAN Handicrafts Development Private Limited	Mr Gopi Krishna	225, LV Desai Compound, Near IInd Railway Gate, Tilakwadi, Belgaum 590006	gopikrishna50@yahoo.com Mobile: 9448132609
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133.	N.G.O - Havani	Mr F.M. Ballam		Mobile: 9880104073
134.	Sheep-Breeders Association	Mr Neelappa.H. Devarajudda, President	Behind Court, Ranebenur, District Haveri, Karnataka	neelappadevarajudda@gmail.com Mobile: 9900201567
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137.		Mr Manjunath		Mobile: 9900497966
138.	SAHJEEVAN	Mr Ramesh Bhatti	175, Jalaram Society, Vishwamangal, Apartment (Backside), Vijaynagar, Bhuj 370001, Kutch, Gujarat	sahjeevan@gmail.com Mobile: 09978220515
139.	Sanjevani	Mr Abdul Hameed		ammimata@gmail.com Mobile: 9449871871
140.	South Asia Pro Poor Livestock Policy Programme (SAPPLPP)	Ms. Varsha Mehta	NDDDB House, 6th Floor, P B No 4906, Safdarjang Enclave, New Delhi 110029	varsha.mehta@sapplpp.org Mobile: 9818153728
141.		Ms. Sheila Koyyana		skoyyana@sapplpp.org Mobile: 9810354040
142.	Sri Narayana Guru Primary Sheep Rearing Cooperative Society	Mr K.B. Peddaiah	Yeddullapalli, Pamidi Mandal, Ananthapur Dist, Andhra Pradesh	Mobile: 9441018240
143.	Tellicherry Social Service Society (TSSS)	Father Thomas	PB No.70, Thalassery 670101, District Kannur, Kerala	tesstellicherry1966@gmail.com Mobile: 9447850747
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List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bengaluru, 31 August, 2015

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Annexure 2-E

Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal 24 September 2015

Government Institutions

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1.	Animal Husbandry Department, Uttar Pradesh	Dr Pramod Kumar, Assistant Director	Acharya Narendradev Marg, Babuganj, Hasanganj, Lucknow, Uttar Pradesh	Phone: 0522 223 8030
2.	Department of Animal Husbandry & Dairying, Madhya Pradesh	Mr Prabhanshu Kamal, Principal Secretary	Kamdheni Bhawan, Vaishali Nagar, Kotra Sultanabad, Bhopal 462 003	Phone: 0755-2760262
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8.		Dr R.K. Dilaware, Joint Director Veterinary Services, Rewa		
9.		Dr D.K. Bhalewadikar, Joint Director Veterinary Services, Indore		
10.		Dr N.K. Bamaniya, Joint Director Veterinary Services, Ujjain		
11.		Dr M.S. Salwar, Joint Director Veterinary Services, Jabalpur		
12.		Dr Ajay Ramteke, Deputy Director Veterinary Services		

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September, 2015

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15.		Dr T.P.Vaidya, Deputy Director Veterinary Services		
16.		Dr J.S. Tiwari, Deputy Director Veterinary Services, Jhabua		
17.		Dr H.L. Sahu, Deputy Director Veterinary Services (State Hospital)		
18.		Dr D.K. Rai, Deputy Director Veterinary Services, Bhopal		
19.	Department of Animal Husbandry & Dairying, Madhya Pradesh	Dr A S Parihar, Deputy Director Veterinary Services D.I. Lab Bhopal	Kamdhenu Bhawan, Vaishali Nagar, Kotra Sultanabad, Bhopal – 462 003	
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26.		Mr R.K. Madre, Sub. Engineer Directorate		
27.		Dr P.C. Baghel, DDAH, SBF Shivpuri		

List of Participants: Regional Workshop on Strengthening Small Ruminant Based Livelihoods, Bhopal, 14 September, 2015

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29.		Dr S.R. Tiwari, Veterinary Officer, Directorate		
30.		Dr Vani Pandey, ADDVS, Directorate		
31.		Mr CPS Thakur, AVFO		
32.		Mr Anil Gujar, SO, Directorate		
33.		Mr Jay Saxena, Assistant		
34.		Mr M.L. Jamre, Assistant		
35.		Dr S.K. Pathak, V.A.S DDVS, Khargone		
36.		Dr Sangeeta Dhamija, Additional Director Veterinary Services		
37.		Dr Anil Kurmi, Jabalpur		
38.		Dr A.K.Singh, ABPO, Mandsaur		
39.		Dr M.L. Parmar, ABPO, Jhabua		
40.		Dr Nilesh Shah, Additional Director Veterinary Services		
41.		Dr Vikas Saxena, ADVS		
42.	Department of Animal Husbandry & Dairying, Madhya Pradesh	Dr B. Manghnani, Addl. Dy. Director Directorate	Kamdhenu Bhawan, Vaishali Nagar, Kotra Sultanabad, Bhopal – 462 003	
43.		Mr Nandu Mavi, Assistant		
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45.		Dr Manoj Kumar Bhardawaj, ADVS		
46.		Dr Archana Date, ADDVS		
47.		Dr M.S. Patel, ADDVS		
48.		Dr Prabhat Date, ADDVS		
49.		Dr M.K.Sharma, VAS Distt. Burhanpur		
50.		Dr Seema Rao, ADVS, Directorate	Bansakhedi, District Mandsaur, Madhya Pradesh	

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Annexure 2-F

National Concluding Workshop on Strengthening Small Ruminant Based Livelihoods, New Delhi 12 January 2016

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Annexure 3

Minutes of the “National Workshop on Strengthening Small Ruminant Based Livelihoods” held on January 16-17, 2015, by DADF, Ministry of Agriculture and SA PPLPP, New Delhi at UNDP Conference Room, 55 Lodhi Estate, New Delhi

A national workshop on “Strengthening Small Ruminant Based Livelihoods” was organised jointly by the South Asia Pro-Poor Livestock Policy Programme (SA PPLPP), a joint initiative of FAO of the UN and National Dairy Development Board (NDDB), India, and the Department of Animal Husbandry, Dairying and Fisheries (DADF), Ministry of Agriculture (MoA), Government of India (GoI), at New Delhi on January 16-17, 2015.

The objective of the workshop was to facilitate multi-stakeholder interaction, arrive at a collective understanding of the issues and challenges confronting actors in development of goat and sheep-based livelihoods, exchange experiences and good practices, and deliberate on a way forward for integration of demonstrated good practices within the functioning of the State Animal Husbandry Departments.

The inaugural session was graced by Shri Anup Kumar Thakur, Secretary, DADF, Mr T Nandakumar, Chairman, National Dairy Development Board (NDDB), Mr Sanjay Bhoosreddy, Joint Secretary (Administration and National Livestock Mission), DADF, Mr R S Rana, Joint Secretary, Livestock Health, DADF, Dr Suresh Honnappagol, Animal Husbandry Commissioner and Dr Kevin Gallagher, FAO Representative, Food and Agriculture Organisation of the UN.

Mr T Nandakumar in his keynote address stressed the need to have a link between farmers and Government organisations, which is essential to exploit the full potential of a number of Government run schemes and programmes. He confirmed this linkage by citing specific examples of the ongoing integrated pilots in Khargone and Jhabua districts of Madhya Pradesh. Shri Anup Kumar Thakur, Secretary, DADF, expressed his extreme delight to see women community health workers participate and share their experiences during the workshop, which has successfully brought all the stakeholders, from animal link workers to policy makers, under one roof to discuss the pertinent issues on small ruminant rearing. He emphasized that full potential of this workshop must be harnessed to draw a detailed demand supply framework, especially for meat markets, so that farmers get good remuneration and goat rearing emerges as a sustainable livelihood source for poor and marginal farmers. Joint Secretary (ANLM) briefed about the National Livestock Mission and its scope for improvement of Small Ruminant based livelihoods. He emphasized that NLM offers a framework and an opportunity for supporting, a multi-state Comprehensive Small Ruminant Development Programme, to be implemented in collaboration with multiple stakeholders at the state and national levels.

Participants of the workshop included delegates from State Animal Husbandry Department, knowledge and development partners, NGO practitioners, donor representatives, and community health workers.

Following recommendations were arrived at:

1. Under Mahila Kisan Sashaktikaran Pariyojana (MKSP) of the National Rural Livelihood Mission (NRLM) NGOs work closely with the Government and can submit proposals. Taking this as an analogy and precedence a window may be created under National Livestock Mission (NLM) enabling NGOs to take more interest and submit proposals to the State Government in consultation with district level officials.

[Action: DADF, supported by SA PPLPP and NGOs associated with NRLM]

2. NGOs are interested in building capacities in the Panchayat Raj Institutions (PRIs) so as to develop proposal for improvement of productivity of different kinds of common lands since this is a very desirable activity for augmenting nutritional inputs for small ruminants. Similarly developing water bodies in common lands along migratory route of shepherds is another necessity. It will be helpful that desirability of involving local NGOs by the PRIs for this purpose is highlighted in the guidelines for NLM.

[Action: DADF, supported by SA PPLPP]

3. A standardized training curriculum for Community Animal Health Workers (CAHWS), clearly defining the kind of livestock to be dealt with by them may be developed under the Sub-Mission on Skill Development, Technology Transfer and Extension. This may be further followed up by preparation of occupational standards for CAHWS as well as specifications on quality and performance of services provided.

[Action: DADF, in consultation with Veterinary Universities]

4. Separate guidelines for sheep and goat development are necessary since sheep rearing is generally a primary vocation of the rearers while goat rearing is a supplementary activity.

[Action: DADF]

5. Design of breed improvement programme and breeding goats may be decided in consultation with livestock keepers. Community led breed improvement programmes must focus on formation of Breeders' Associations for conservation of indigenous breeds and their genetic improvement through artificial/ objective-oriented selection.

[Action: DADF and organisations involved in small ruminant breeding research and improvement programmes]

6. There is need for creation of a mechanism for inter-ministerial coordination of land use planning and policy making with respect to common land, wasteland and grazing areas. Involved Departments may be Animal Husbandry, Forest, Rural Development, Agriculture & Cooperation, Water Resources, etc.

[Action: DADF, Ministry of Agriculture and Government of India]

7. Five Regional Workshops will follow this National Workshop.

[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]

8. Use of ICT based tool for migratory shepherds may be encouraged and facilitated to enable them seek assistance on livestock health and production and obtain advice and information on related matters.
[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]
9. Concerted efforts may be made to tap funds available under Corporate Social Responsibility (CSR) for use in animal husbandry projects.
[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]
10. Animal shelters to be designed in accordance with the local agro climatic conditions.
[Action: State Animal Husbandry Departments, concerned NGOs]
11. For last mile delivery of health care the role of women community health workers is critical and requires sustained support in capacity building. Scope of their services needs to be clearly defined and demarcated. They are to be made accountable to the service recipients, anchored within community institutions, and also have linkage with local veterinary institutions.
[Action: DADF, State Animal Husbandry Departments, SA PPLPP and concerned NGOs]
12. Inclusion of community based livestock insurance within the framework of NLM was strongly recommended as a strategy for risk reduction in small livestock holdings.
[Action: DADF, SA PPLPP and concerned NGOs]
13. Development of infrastructure of livestock markets, as well as a conducive policy environment for livestock trading may be considered as priority areas for investment by the Government.
[Action: DADF]
14. Significant investment on development of social and human capital over a sustained period of time would be necessary for the community based model to accrue sustainability.
[Action: DADF, State Animal Husbandry Departments, agencies supporting small ruminant development programmes]



Strengthening Small Ruminant Based Livelihoods: Regional Workshop Bhubaneswar, July 24, 2015

Participating States: Odisha, Bihar, West Bengal, Chhattisgarh and Jharkhand

*Host Organisation: Fisheries and Animal Resources Department,
Government of Odisha*

Facilitated by: Regional Centre for Development Cooperation

Actionable points

1. Scaling up of successful practices and approaches as demonstrated through SA PPLPP/GoI models in Madhya Pradesh, and other organizations working on goat-based livelihoods improvement, with an emphasis on creation of a cadre of trained women community animal health workers, convergence with the AH&VS department at the Panchayat/Block level for supplies and technical support, and establishment of community institutions (farmers' collectives).
(Action: State AH&VS departments, DADF, GoI)
2. Options for formalization of the role of CAHWs to be explored
(Action: State AH&VS departments, DADF, GoI)
3. Wherever SHGs are available, synergies between CAHWs and SHGs/ their collectives should be strengthened for improving chances of sustainability of their services; SHGs can help by exerting pressure on livestock-keepers to pay up for services rendered by CAHWs.
(Action: All organizations supporting CAHWs, State AH&VS departments)
4. Need to enhance supply of good quality breeding bucks from government farms and other sources, including through public-private partnerships
(Action: DADF, GoI and State AH&VS departments)
5. Infrastructure (physical, financial and human) for training of livestock – keepers to be strengthened, and systematic capacity-building of livestock-keepers to be incorporated in departmental policy and programmes
(Action: State AH&VS departments, DADF, GoI)
6. Government should provide financial and technical support for buck exchange programmes on a large scale and regular basis
(Action: State AH&VS departments)
7. In states with significant dependence on small ruminants, the state livestock policies need to be revisited and revised, with due recognition given to small ruminants and their role in livelihoods improvement
(Action: State AH&VS departments)

8. Establishment of a multi-stakeholder platform for information sharing and inter-departmental coordination at the state level, with involvement of all departments that have a bearing on small ruminant based rural livelihoods (Animal Husbandry, Agriculture, Fisheries, Forestry, Rural Development and Panchayati Raj); it was stressed that these inter-sectoral bodies should encourage coordination, cooperation and convergence between and among government departments
(Action: State AH&VS departments, with support from DADF, GoI)
9. Training, technical and financial support for establishment of Breeders' Associations for conservation of indigenous breeds should be provided by the government.
(Action: State AH&VS departments)
10. Concern was expressed over the increasing lack of access to, and diversion of lands otherwise available for grazing purposes, especially as a result of developments in the forestry sector. Intermediation between DADF, MoA and MoEF at the highest levels was requested.
(Action: DADF, GoI)
11. Development of robust inter-state quarantine systems for disease control
(Action: State AH&VS departments)
12. Explore feasibility of increasing floor area under Indira Awas Yojana by 100 sq ft for housing of goats/ small animals
(Action: DADF, GoI)
13. Studies on the following aspects may be taken up, for purposes of improved knowledge and practice, and information dissemination:
 - Anthelmintic drug resistance and appropriate regime for administration of dewormers in goats and sheep
 - Relevant information and best practices in construction of goat sheds using locally available materials
 - Regulatory framework - Options for livestock markets
 - Traditional knowledge and ethno-veterinary practices in livestock rearing
 - Systems for enhancing productivity of common lands and other grazing/land resources
(Action: DADF, GoI, SA PPLPP and relevant research institutes)
14. Documentation and dissemination of impact of PRADAN's interventions in Keonjhar and Kandhmahal in Odisha, with improved nutrition from locally available resources, and cost-benefit analysis of the same.
(Action: PRADAN, SMILE, SA PPLPP, DADF, GoI)
15. Initiate action for registration of 'unrecognized' and important breeds found in the state of Odisha
(Action: AH&VS department, Odisha, DADF, GoI, and NBAGR)

Strengthening Small Ruminant Based Livelihoods: Regional Workshop Bengaluru, August 31, 2015

Participating States: Karnataka, Andhra Pradesh, Telangana, Kerala and Tamil Nadu

Host Organisation: Department of Animal Husbandry and Veterinary Services, Government of Karnataka and Karnataka Sheep and Wool Development Corporation

Facilitated by: Foundation for Ecological Security

Actionable points

1. The importance of extending primary and preventive veterinary care to the village level is being recognized by state AH&VS departments, and efforts are afoot to make these services more accessible to smallholder livestock keepers; however, greater attention to small ruminants, and allocation of financial as well as human resources is called for.
(Action: State AH&VS departments, DADF, GoI)
2. Provision of adequate care and facilities (e.g., mobile shelter, solar light, net, gum boots, etc.) for shepherds along the migratory routes, in addition to mandatory deworming and vaccination was suggested in Karnataka.
(Action: AH&VS department, Karnataka, KSWDC, and DADF, GoI)
3. Intensification of efforts on development of vaccines for diseases such as Brucellosis, Blue Tongue and CCCP.
(Action: DADF, GoI and relevant R&D organizations)
4. Training of livestock-keepers and community animal health workers (CAHWs) needs to be undertaken in an extensive and focused manner.
(Action: State AH&VS departments, DADF, GoI)
5. Concern was voiced over the high levels of pesticide and chemical fertilizer usage on farm lands; the chemicals remain in the agriculture residue that herds of goats and sheep graze on, and hence is a hazard to the health of the animals, as well as the end-users who consume the meat or milk of these animals. There is a need for awareness creation regarding judicious use of chemical pesticides and fertilizers, and possibly compensation for shepherds who lose animals from food poisoning through appropriate insurance products.
(Action: State AH&VS departments, DADF, GoI, and insurance companies)

6. Registration of ‘undescribed’ and lesser known breeds through promoting establishment of Breeders’ Associations was suggested; this will result not only in conservation of the breed, but also fetch higher economic returns.

(Action: State AH&VS departments, DADF, GoI and NBAGR)

7. Quality bucks, because they fetch higher prices, end up in abattoirs. At the same time, inbreeding and negative selection of bucks and rams are seen as major problems which the state departments want to tackle. Policy and programmatic support is sought by state AH&VS departments in checking these practices.

(Action: DADF, GoI)

8. Construction of goat shelters using locally available resources is not only cost-effective and animal friendly, but also easier to construct and maintain – there is a need for knowledge generation and dissemination in this area.

(Action: DADF, GoI and SA PPLPP)

9. Livestock-keepers are primarily dependent on common lands for meeting the fodder requirements of small ruminants, and institutions for the management and development of commons occupy the center-stage in promotion of programmes aimed at livestock (small ruminant based in particular) development. However, grazing resources are fast depleting and measures need to be taken up for augmenting the same.

(Action: DADF, GoI, State AH&VS departments and other concerned agencies /departments)

10. Feed and fodder conservation measures, as well as operation of fodder banks (as found in Rajasthan and Gujarat) to be reviewed and adapted in south India.

(Action: State AH&VS departments, SA PPLPP)

11. Development of market infrastructure was suggested as a basic requirement, including construction of shed/ shelters for animals and their keepers, provision of water, screening of diseased animals from healthy, veterinary care and quarantine facilities.

(Action: State AH&VS departments)

12. DADF, GoI will develop a framework for promoting livestock markets, which will be shared with all the state governments for formulation of appropriate policies and programmes in support of development of livestock markets.

(Action: DADF, GoI)

13. Extension of financial services to livestock-keepers through GoI’s Kisan Credit Card scheme was stressed upon by the JS; ‘farmer’ includes both agriculturists and livestock rearers – awareness creation required among both officials and livestock farmers.

(Action: DADF, GoI and State AH&VS departments)

**Strengthening Small Ruminant Based Livelihoods: Regional
Workshop
Bhopal, September 14, 2015**

Participating States: Madhya Pradesh, Maharashtra and Uttar Pradesh

*Host Organisation: Department of Animal Husbandry, Government of
Madhya Pradesh*

Facilitated by: Sampark Samaj Sevi Sansthan

Actionable points

1. Availability of vaccines (ET and PPR in particular) in adequate numbers needs to be ensured; State AH&VS departments to raise timely indents and proposals for procurement of vaccines from the Central Government
[Action: State AH&VS departments, DADF, GoI]
2. NGOs involved in promoting small ruminant based activities are required to submit their requirement of vaccines to the concerned District/ Block veterinary hospital well-in-advance, with a copy to the State Directorate of AH&VS. This will ensure that their requirements are integrated in the system.
[Action: Concerned NGOs]
3. For bringing services of *Pashu Sakhis* within the purview of 'Minor Veterinary Services' of the section 30 (b) of the Veterinary Council of India Act, 1984, it was suggested that the framework of the e-Vet programme (in MP) be considered, as it is also applicable to the Go-Sevaks. The e-Vet programme is currently operational in 6 districts of the state and there is a proposal for its expansion to 15 other districts.
[Action: M.P. AH&VS department, Sampark, AKRSP (I), SA PPLPP and DADF (GoI)]
4. The state of Maharashtra has issued a notification on 'Minor Veterinary Services' and the same should be circulated to all the other states, through the DADF/ SA PPLPP.
[Action: Maharashtra AH&VS department, DADF (GoI), SA PPLPP]
5. There was agreement at a broad level that until such time as may be required for the executive order/s to be issued, and/or other legal and policy changes required, *Pashu Sakhis* may be linked and registered with the local Block Veterinary Hospital.
[Action: State AH&VS departments, concerned NGOs]
6. Capacity building at the grassroots is the most important requirement for enhancing returns from small ruminant rearing; these needs to be undertaken in a campaign mode for ensuring that the benefits are sustainable and flow to the primary producers.
[Action: State AH&VS departments, DADF (GoI)]

7. To increase the 'margin of profit', focus of the AH&VS and other related departments and agencies needs to be on *reducing input costs*, health services and breed improvement

[Action: State AH&VS departments, DADF (GoI)]

8. There has been a steady reduction in areas of grazing lands and other land/resources used for fodder production. In States such as M.P., where a large proportion of the total area is designated forest lands, closure and tightening control of these areas has resulted in untold difficulties to livestock-keepers. There is a need for the concerned actors, led by the DADF (GoI), to meet with the forest department personnel at the State and Central levels, to discuss and resolve the issues pertaining to entry/ grazing of goat and sheep in social forest and JFM areas, and draw up feasible arrangements that are at the same time beneficial to livestock-keepers and not detrimental to the forest health or ecosystem.

[Action: DADF (GoI), State AH&VS departments]

9. Convergence between schemes of various departments is necessary for the intended benefits to accrue; in this context, it was commended that the state of MP had issued a joint order by the department of Rural Development and the AH&VS department, stating that the beneficiaries of schemes of the latter would receive housing support under MGNREGS (of the RD department). More initiatives of the kind referred above are required. Further, states to explore possibility of support for goat shelters as a priority activity under MGNREGS.

[Action: State AH&VS departments, DADF (GoI)]

10. The process of breed recognition needs to be reviewed and simplified, so as to be more amenable to the requirements of livestock-keepers; further, the process should be supported by civil society actors

[Action: DADF (GoI), NBAGR]

11. Conservation and cognizance of local, native breeds is paramount and measures are to be put in place for the same. Use of native breeds in all government programmes was stressed.

[Action: State AH&VS departments, DADF (GoI)]

12. Pricing of breed animals to be distinct from animals raised for meat only.

[Action: DADF (GoI), CIRG]

13. Amendment of the APMC Act was suggested, as had been done in Karnataka, to provide adequate space for livestock within market yards.

[Action: State AH&VS departments, DADF (GoI)]

14. Sale-purchase platform facilitated by the GoI (Kisan portal, mkisan.gov.in) to be utilized by all concerned actors, including the government departments, to enable informed market interventions.

[Action: State AH&VS departments, Farmer Producer Organizations]

**Strengthening Small Ruminant Based Livelihoods: National
Concluding Workshop
New Delhi, January 12, 2015**

Actionable Points

1. Goats and sheep offer an effective risk mitigation strategy to small and marginal farmers, especially in rainfed regions, where they are intricately linked with cropping systems, and make livelihoods more climate resilient. More than 83% of the livestock in India is reared in the mixed crop-livestock system, and therefore, the development of the two sub-sectors must adopt an integrated approach.
[Action: DADF, GoI, State Governments/UT, development donors and partners]
2. To develop a comprehensive document on management practices of goat and sheep husbandry, covering aspects pertaining to health, biosecurity, breed, marketing, and so on, based on deliberations during the series of workshops organized by SA PPLPP and DADF, GoI between January, 2015 and January, 2016.
[Action: SA PPLPP and DADF, GoI]
3. Although the *Pashu Sakhi* model of improving goat-based livelihoods is a demonstrated success, as evident from a multitude of projects around the country, enabling sustainability and legitimacy of their services requires that all States/UT quickly notify the Minor Veterinary Services (MVS) under the Section 30 (b) of the Veterinary Council of India Act, 1984, including provision of first aid, deworming and vaccination of small animals and poultry. At the same time, energies and efforts need to be directed towards ways and means of Certification, Accreditation, or otherwise recognition of trained *Pashu Sakhis* within the existing legal, institutional and administrative frameworks.
[Action: State/UT Animal Husbandry Departments]
4. In Madhya Pradesh, efforts were ongoing to link up *Pashu Sakhis* with veterinary institutions, after the regional consultation at Bhopal in September, 2015, hosted by the department of Animal Husbandry, Government of Madhya Pradesh. The process and outcome of these efforts to be shared with DADF, GoI and other States/UTs at the earliest possible.
[Action: Department of Animal Husbandry, Madhya Pradesh]
5. In replicating and up-scaling the *Pashu Sakhi* model in other regions and geographies, the centrality of women in the success of the pilots should not be forgotten, because that is the key to both accessibility and sustainability of the services provided, as well as empowerment of women.
[Action: DADF, GoI, State governments/UTs, development donors and their partners]
6. Over a two-year term, the SA PPLPP goat pilot in M.P. had resulted in doubling of the goat population, and a 1.6 times return on investment from sale of goats;

on the other hand, the poultry pilot of similar scale in the same State had resulted in a 5.8 times return on investment, not counting the intangible gains in terms of empowerment of women, improved access to preventive veterinary services, convergence with local governance institutions, and so on. A major learning from the two pilot projects was the importance of combining goat and BYP, not only as livelihood options, but also for the financial sustenance of *Pashu Sakhis*. Results and learnings from SA PPLPP pilot projects to be made available to all delegates.

[Action: Development donors and partners; SA PPLPP]

7. Taking a cue from small ruminant livelihood development projects successfully implemented by NGOs across the country, all State/UT AH&VS departments were requested to recognize the feasibility and scope of fee-based service provision to livestock-keepers, and undertake large-scale deworming and vaccination programmes in their respective States/UTs.

[Action: State Animal Husbandry Departments]

8. Subsequent to the national workshop in January 2015, the DADF, GoI has developed biosecurity guidelines for poultry farms and for goat and sheep farms, and taken steps for policy interventions in the following areas: (i) community insurance of livestock; (ii) preventing negative selection of bucks for breeding purposes; and (iii) development of market infrastructure for livestock under the APMC Acts, enacted by the State/UT Governments. The guidelines would be shortly made available on websites of DADF and SA PPLPP.

[Action: DADF, GoI and SA PPLPP]

9. There was mention of Joint Forest Management (JFM) Committees planning to grow fodder tree species in areas under JFM in Tripura; the process of arriving at the decision, its implementation, management and outcomes need to be studied and assessed for replication and adaptation in other parts of the country.

[Action: DADF, GoI with SA PPLPP, AHD – Tripura, and Tripura Forest Department]

10. The State of Rajasthan has pledged INR 300 crores over a five-year term towards goat-based livelihoods development in the State, including INR 500 lakhs for market development. The aim is for the interventions to result in incremental incomes of INR 50,000 – 80,000 for about 3,00,000 households.

[Action: Animal Husbandry Department, Govt. of Rajasthan]

11. In Maharashtra, an excellent convergence initiative aimed at training and sustainability of a cadre of *Pashu Sakhis* had been implemented by the Maharashtra State Rural Livelihoods Mission (MSRLM), in partnership with The Goat Trust, AFARM and Kudumbashree, and Maharashtra AHD; the initiative also included financial services and interventions for establishing alternative market mechanisms. Results of the interventions to be documented and shared widely.

[Action: MSRLM]

12. Learning from past experiences with cross-breeding, and taking note of the ongoing issues, challenges, and departmental initiatives at improving productivity in small ruminants, all States/UTs were requested to develop a small ruminant breeding policy, with emphasis on conservation and improvement of native germplasm, and recognition of existing indigenous breeds. Further, all States/UTs were advised to exercise discretion in introducing and/or distributing exotic breeds in the field or among livestock-keepers in the State/UT.

[Action: State/UT Animal Husbandry Departments]

13. Disease control, prevention and eradication through comprehensive and systematic disease control programmes in small ruminants will transform the livelihoods of smallholder livestock-keepers; coordinated efforts by all the stakeholders are of utmost priority for achievement of this objective.

[Action: All stakeholders, Government and non-Government]

14. The goat market is valued at USD 7 billion, with involvement of over 14 million households; however, the goat value chain was disjointed and marketing mechanisms were inefficient. The BMGF-IFAD have launched a project for design of a Programme for private-public-private producer partnerships (4Ps) in small ruminant value chain development in India, which will cover the States of Uttar Pradesh, Bihar and Odisha and is expected to turn goat farming into a viable activity for the modern youth, through focus on commercial farms, abattoirs, marketing; partnerships between government, private sector and producers (4 Ps); and creation of new farmer institutions for aggregation of produce and improved market negotiation.

[Action: IFAD, BMGF, concerned States and partner agencies]

15. Taking cognizance of shrinking pastures, closure and/or diversion of forest areas, and spiraling conflicts between small-ruminant herders and the forest departments, it was recommended that the issue be taken up at the highest level between the DADF, the Ministry of Environment, Forests and Climate Change, and the Ministry of Tribal Affairs. A round-table consultation on the issue, with senior officials from the concerned departments and experts on forest management and regeneration, would be hosted by the DADF, GoI.

[Action: DADF, GoI]





**Department of Animal Husbandry,
Dairying & Fisheries**

Ministry of Agriculture and Farmers Welfare
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