Improving the Performance of Pro-Poor Sheep and Goat Value Chains for Enhanced Livelihoods, Food and Nutrition Security in Ethiopia (SmaRT-Ethiopia)

IFAD Grant 2000000764-ICARDA

Site intervention plans designed through the SmaRT Workshop in April 2017

Intervention plan for Atsbi site

Scenario (what the team is looking for – goals, interventions, suitability limitations):
Reduced lamb mortality, enhanced lamb growth, improved diseases surveillance, prevention and control, effective feed supplementation, and improved sheep breed

Outline of the desired integrated package:
Improved productivity and quality of sheep meat for enhanced livelihood

Package component interventions [names of interventions]	**Justification and reasoning for that intervention / fit to overall site vision**	**Deliverables of this specific package to the site [targets]**	**Essential actions for this site to be able to deliver this package [expertise; resources; etc]**	**Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?**			
				When	**Where**	**Who**	**Budget request**
1. Better hygienic practices sheep meat quality	• It important sheep meat both in quantity and quality		• Training of trainers • Equipment	May 2017-July 2017	• G/Naele • Habes • G/kidan	• Veterinarians • Animal production specialists •	$2,187.50
2.improving reproductive performance of sheep	• It is important to improve the reproductive potential of sheep through reducing reproductive disorder and associated losses implementing focus feeding	• Increase lambing percentage by 10% • Identify major abortion causing agents • Increase sheep contribution to rural livelihood security • Increase farmers awareness on good flock management and zoonotic risk of abortion • Increased involvement veterinarians and extension agents in herd health	• Training of trainers • Focus feeding during breeding season • Flock health managements • Systematic follow up of abortion • Identification and characterization of reproductive disorders • Flied and lab. Equipment and lab consumables	April 2017-April 2018	• G/Naele • Habes G/kidan	• Veterinarian	$4,375.00

3.understand, prevent and control anthrax	It is important to prevent zoonotic impact of anthrax	• Increased awareness and understanding in the community about anthrax transmission and control • Improved suspicious carcass • Reduce risk anthrax exposure • Reduced mortality	• Focus group discussion • Participatory diseases surveillance • Vaccination • Promotion	April 2017-April 2018	• G/Naele • Habes G/kidan	• Veterinarians	$2,187.50
4.Community based sheep breeding program	It is important to ensure sustainable sheep genetic improvement	• Live body weight of sheep will be increased • Three sheep breeding cooperative will be established and supported • Increased flock/ animal productivity and producers income • Increase consumption of animal source food	• Community mobilization • Flock identification • Data collection • Implement selection of rams	April 2017-April 2018	• G/Naele • Habes G/kidan	• Breeders • Animal production specialists	$3,062.50
5.Coenurosis control	it is implant to implement b/se it main problems in the area	• Improved awareness and understanding about the disease • Reducing morbidity and mortality in sheep	• Training • Dog deworming • Parasite load evaluation • Data collection	April 2017-April 2018	• G/Naele • Habes G/kidan	• Veterinarians	$1,750.00
6.Community based GIT parasite control in sheep	GIT parasite is the main problems in the area need to be controlled	• Increased farmers awareness • Decrease economic loss due to GIT parasite • Increased internal parasite control at community level • The involvement of farmers, drug vendors extension agents on GIT parasite control	• Training • Parasite load evaluation • Deworming • Data collection	April 2017-April 2018	• G/Naele • Habes G/kidan	• Veterinarians	$1,750.00
7.integerate flock health approach to reduce	respiratory diseases in sheep is major	• Increased vaccination coverage	• Training	April 2017-April 2018	• G/Naele • Habes	• Veterinarians	$1,875.00

impact of respiratory diseases in sheep	problem in the area need to be controlled	• Improved awareness and capacity to manage respiratory diseases • Reduce economic loss due to RD	• Animal health data collection • Systematic follow-up • Set-up effective vaccination and preventive treatment • Establish intensive longitudinal monitoring system		G/kidan		
8. Reducing lamb mortality	There is high lamb mortality which negatively affect sheep contribution in small holder livelihood	• Increased lamb survival percentage • Increased awareness on flock health management • Identified cause of lamb mortality	• Effective treatment for infectious cause of growing lambs • strategic supplementation of feed for pregnant ewes and lambs	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Veterinarians •	$3,500.00
9. Responsible use of antimicrobials in sheep	there is a gab in accessibility of effective drugs in the site	• enhanced knowledge of the small holder farmers in drug use • anti-microbial resistance monitoring program will be d EVELOPED	• survey to assess knowledge • training • determine anti-microbial residual level in meat • test meat sample	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Veterinarians	$3,500.00
10. training women in sheep husbandry and health	Women do the work of daily taking care of diseased animals They have better knowledge and skill	• Better provision of sheep disease surveillance, management and reporting services	• Training • Awareness creation • Gender sensitization works	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Gender specialists • Veterinarians • Animal production specialists	$1,100.00
11.selective effective fasciolicides to control sheep liver fluke	Liver fluke is one of the major parasites in the site	• Reduced mortality of sheep due to liver fluke • Enhanced productivity of sheep, food security and livelihood • Improved access to necessary animal health input	• Testing of fasciolicides • Community based sustainable liver fluke control • Strategic timing of treatment and prevention	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Veterinarians	$1,400.00

12. urea treatment to improve the nutritive value of crop residue	Urea treatment improves the nutritive values of crop residue	• Provides supplementary Non protein Nitrogen source • Increases feed intake of low quality fibrous feed • Improved availability of fattened rams and ewes	• Feeding trail • Partial budget analysis	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Animal nutritionist • animal productions	$1,200.00
13. enhanced sheep fattening with modified feeding and management practice	Value addition of the improved sheep breed leads to enhanced production	• Improve sheep fattening practise • Income generation • Exploit genetic growth potential of sheep breed	• Feeding trail • Partial budget analysis	April 2017-April 2018	• G/Naele • Habes • G/kidan	• Animal nutritionist • animal productions	$2,187.50
14.Field solution for artificial insemination of sheep	AI is the main universal method to intensity of selection and genetic progress in sheep	• reduce dissemination of sexually transmitted disease • increased genetic improvement progress	• elite ram selection • field organization oestrus synchronization schedule • semen collection • AI	April 2017-April 2018	• G/Naele • Habes • G/kidan	• veterinarian • animal production • animal breeder	$3,937.50
15.Ultrasound to diagnose pregnancy and reproductive disorders in sheep	Ultrasound helps in green management of sheep reproduction	• Culls sterile animals • Screening of fetus • To decide management intervention on ewes	• Check repeat breeders, pathologies, regnant animals during slaughter • Discard pregnant females prior synchronization and AI	April 2017-April 2018	• G/Naele • Habes • G/kidan	• veterinarian • animal production • animal breeder	$988.00

Intervention plan for Tanqa Abergelle site

Scenario (-what the team is looking for -goals, interventions, suitability limitations):

Improving the Livelihood of Small Farm Households through Improved Goat Production Interventions

Outline of the desired integrated package

Improving Income Generation Capacity and Product Diversification of Small Farm Households

Package component intervention [name of the intervention]	**Justification and reasoning for that intervention/fit to overall site vision**	**Deliverables of this specific package to the site**	**Essential actions for this site to be able to deliver this package (Expertise; resources; etc)**	**Timeframe and actors to implement the intervention(when, where, and who by) any indication of scale and costs**	**Budget required for this activities**
1. Integrated community based goat production and productivity improvement					
1.1. Scaling up of community based goat breed improvement	The current activity at Abergelle has shown promising results	- The program will be expanded into two more villages	- Village and farmers selection - Production system assessment - Experience sharing -Implementation of the work	Timeframe: May2017-March 2018 Training: TARI Experience sharing: TARI, ICARD, ILRI Monitoring and evaluation: TARI district extension office	**402000**
1.2. Field solutions for estrus synchronization and artificial insemination	Enables an immediate semen processing and insemination that would enhance rate of conception and time of birth	- Improved conception rate and kid survival (report and publications)	- Capacity building of researchers and extension workers on this technology -Demonstration of small scale bench laboratory for semen processing and AI	Timeframe: June-December 2017 Capacity building: ICARDA Demonstration: TARI, ICARD, ILRI Scaling out: district extension office	
1.3. Use of ultra sound to diagnose pregnancy and reproductive disorder in small ruminants	Enable to early identification of pregnancy and reproductive disorders that would otherwise severely affect the	- Early detection of reproductive disorders so that improve reproduction rate (report and publications)	- Capacity building of researchers and extension workers on this technology -Demonstration of the technology	Timeframe: June-December 2017 Capacity building: ICARDA Demonstration: TARI, ICARD, ILRI	

Package component intervention [name of the intervention]	Justification and reasoning for that intervention/fit to overall site vision	Deliverables of this specific package to the site	Essential actions for this site to be able to deliver this package (Expertise; resources; etc)	Timeframe and actors to implement the intervention(when, where, and who by) any indication of scale and costs	Budget required for this activities
	reproductive capacity of our animals			Scaling out: district extension office	
2. Improvement of meat and milk production from goats through feed management					
2.1. Utilization and incorporation of food-feed crops in goat diet for meat improvement	Possible to improve productivity of food –feed crops in grain yield and forage biomass thereby incorporate to the animal ration	- Enhanced growth rate and meat production of goats (report and publications)	-Training to farmers on use of food-feed crops -Integration and demonstration of pigeon pea, cowpea and ground nut into the crop production and utilizing their grain and biomass in goat ration	Timeframe: June2017-March 2018 Capacity building: ICARDA Demonstration: TARI, ICARD, ILRI Scaling out: district extension office	**167400**
2.2 Utilization and incorporation of food-feed crops in goat diet for milk improvement	Possible to improve productivity of food –feed crops in grain yield and forage biomass thereby incorporate to the animal ration	-Enhance milk yield from goats (report and publications)	-training to farmers on use of food-feed crops -integration and demonstration of pigeon pea, cowpea and ground nut into the crop production and utilizing their grain and biomass in goat ration	Timeframe: June2017-March 2018 Capacity building: ICARDA Demonstration: TARI, ICARD, ILRI Scaling out: district extension office	
3. Integrated herd health approach to reduce the impact of diseases and internal parasites of goats with emphasis on Anthrax, coenuruses and GIT parasites	Due to huge burden of infectious diseases and internal parasites, goats are not delivering their capacity to produce and reproduce. However it is possible to improve production and productivity through reducing this burden.	- Report on the prevalent infectious diseases and internal parasites of goats -Report on the output of the intervention (disease and parasite control)	- disease and parasite survey and laboratory identification - introduction of control measures -tapping the knowledge of women in disease surveillance and management - training to farmers (women/men) on disease and parasite control measures -monitoring the changes	Timeframe: June2017-March 2018 Disease and parasite surveillance: TARI, District extension Training: TARI, ICARD, ILRI Introduction of intervention and monitoring: TARI, ICARDA and District extension	**105000**

Package component intervention [name of the intervention]	Justification and reasoning for that intervention/fit to overall site vision	Deliverables of this specific package to the site	Essential actions for this site to be able to deliver this package (Expertise; resources; etc)	Timeframe and actors to implement the intervention(when, where, and who by) any indication of scale and costs	Budget required for this activities
4.Use of simple fit dairy technologies to improve milk and milk product quality (simple smoker, pasteurization, cream separation, use of thermometers)	Milk is wasted at peak production seasons due to hygienic and other management problems.	- Report on improved milk and milk product quality due to the intervention	- training on use and importance of the simple fit dairy technologies to beneficiaries - monitoring of quality changes on products after intervention - technology demonstration - assessing the benefits gained by participants	Timeframe: June2017-March 2018 training : TARI, ICARDA Demonstration: TARI, ICARD, ILRI Assessment of benefit: TARI, ICARDA and District extension	**106000**
5. Market Linkage	Poor market information system and longer channel to terminal market hinder farmers from selling their animals with justified price	- creation of linkage with Abergelle International livestock production plc. ????			
Total budget required for all activities					**780400**

Budget Estimation per Intervention

Activities	Cost type	Unit	Unit cost	Total units	Total Cost
Integrated community based goat production and productivity improvement	Researcher Per diem	Man day	600	90	54000
	Input/supply	Lump sum			52000
	Workshop allowance and organization	Man day			80000
	Fuels and lubricants	Litre per km	20	4200	108000
	Wage	Salary	1500	72	108000
Sub total					**402000**
Improvement of meat and milk production from goats through feed management	Researcher Per diem	Man day	600	30	18000
	Input/supply				30000

	Workshop allowance and organization				60000
	Fuels and lubricants				54000
	Wage		90	60	5400
Sub total					**167400**
Integrated herd health approach to reduce the impact of diseases and internal parasites of goats with emphasis on Anthrax, coenuruses and GIT parasites	Researcher Per diem	Man day	600	25	15000
	Input/supply	Lump sum			
	Workshop allowance and organization	Man day			50000
	Fuels and lubricants	Litre per km			20000
	Wage	Salary			20000
Sub total					**105000**
Use of simple fit dairy technologies to improve milk and milk product quality (simple smoker	Researcher Per diem	Man day	600	10	6000
, pasteurization, cream separation, use of thermometers)	Input/supply	Lump sum			15000
	Workshop allowance and organization	Man day			40000
	Fuels and lubricants	Litre per km			25000
	Wage	Man day			20000
Sub total					**106000**
Ground total sum					**780400**

Intervention plan for Abergelle Wag site

Scenario (what the team is looking for – goals, interventions, suitability limitation

Enhancing the production and reproductive performance of Abergele goat through integrated technology provision.

Outline of the desired integrated package:

- Accelerated genetic improvement and improved health and feed management of Abergelle goat
- Empowering women through improving and diversifying milk handling and processing

Package component interventions [names of interventions]	**Justification and reasoning for that intervention / fit to overall site vision**	**Deliverables of this specific package to the site[targets]**	**Essential actions for this site to be able to deliver this package [expertise; resources; etc]**	**Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?**	**Personnel visiting each activities/month**
1. Scaling up of Community based Abergelle goat breeding programme (CBBP)	-Promising achievement from the pilot CBBP villages	- 3 new CBBP villages established -the on station nucleus flock production and the CBBP villages linked	-Open data kit (3 pcs) -Solar energy panel - 9,000 USD	-from April 2017 to April 2018 -Abergell, Ziquala and Sekota zuria districts of Waghimra zone -SDARC and ICARDA	3 trips (3 researchers + 1 driver) for 12 months= 144
2. Field solution for artificial insemination of Abergelle goat	-to accelerate the genetic improvement work	-700 Does inseminated	-Phase contrast microscope -Artificial vagina (10 pcs) -Hormone for 700 Does -applicator syringe (2 pcs) - 6,000 USD	-from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA	4 trips ((3 researchers + 1 driver) for 5 months =80
3. Ultrasound to diagnose pregnancy and reproductive disorders in Abergelle goat	-to accelerate the genetic improvement work	-700 Does diagnosed before and after insemination	-Ultrasound for pregnancy diagnosis of goats (2 pcs) -Gel -1,000 USD	-from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA	3 trips (2 researchers + 1 driver) forn1 month = 9
4. Improving reproductive performance of Abergelle goat through reducing abortion and kid mortality	-Abortion and kid mortality are serious problems in Abrgelle goat production	- Up to 3000 goats will be monitored and integrated intervention activities will be applied in two CBBP villages and on station	-Virus transport media (VTM)(25 pcs) -Swabs (100 pcs) -portable refrirgrator -Vacutainer tube and needle (4 packs each) -3,000 USD	-from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA	3 trips (2 researchers + 1 driver) for 12 months= 108
5. Integrated flock health approach to reduce impact of respiratory disease	-Previous sero survey result indicated that respiratory disease is serious problem in Abrgelle goat production	- Up to 2000 goats will be monitored and integrated intervention activities will be applied in one CBBP village	-Virus transport media (VTM)(25 pcs) -Swabs (100 pcs) -portable refrigrator -Vacutainer tube and needle (4 packs each) -2,000 USD	-from April 2017 to April 2018 -Ziquala districts of Waghimra zone -SDARC and ICARDA	3 trips (1 researchers + 1 driver) for 12 months= 72
6. Responsible use antimicrobials in Abergelle goat	-There is an observation of miss use of drugs and raw milk consumption by the community	-District animal health experts , health technicians , CAWHs and selected small holder farmers will be included in the study	-milk smapling tubes with transport medium for the milk -1,500 USD	-from April 2017 to April 2018 -Abergell and Ziquala districts of Waghimra zone -SDARC and ICARDA	3 trips (1 researchers + 1 driver) for 1 months= 6

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Personnel visiting each activities/month
		-milk smaples will be taken according to standard protocol			
7. Promotion of Abrgelle goat milk fat separator, pasteurization, milk culture and smoker technologies to improve goat milk products	-Goat milk is very important for human consumption in Waghimra zone -Milk wastage and handling problem	-Up to 125 small holder goat farmers will be directly reached	-Milk fat separator (5 pcs) -Smoker (20 pcs) -Milk culture (CH 11, FL DAN and R703) (5 packets) -3, 500 USD	-from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA	3 trips (2 researchers + 1 driver) for 2 months= 12
8. Improving feed resource base for Abergelle goat through production of food feed pulse crops and urea treatment of cereal crop residues	-Feed shortage is a serious problem in the area -Pulse crops are wel adapted in lowland areas	-up to 25 goat farmers will be reached	-1,500 USD	-from April 2017 to April 2018 -Abergelle, Ziquala and Sekota zuria districts of Waghimra zone -SDARC and ICARDA	3 trips (1 researchers + 1 driver) for 3 months= 18
9. Assessing and strengthening the gender capacities of value chain actors and partners for Abergelle goat improvement in Waghimra zone	-Gender capacity of actors at different level of the value chain is low	-Gender capacity needs prioritized and targeted for capacity building activities -Gender capacity building activities on priority areas delivered -Gender capacity of targeted partners (about 5 partner organizations) developed. Partner's gender integration support enhanced	- 800 USD - gender focal persons, gender specialists	from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA (	2 trips (2 researchers + 1 driver) for 1 months= 6
10. Training women in Abergelle goat husbandry and health	-Due to their close relation to sick animals & barn cleaning tasks women believed to have more	About 75 women from the CBBP villages will be trained	2,000 USD	from April 2017 to April 2018 -Abergell, Ziquala and Sekotazuria districts of Waghimra zone -SDARC and ICARDA	3 trips (3 researchers + 1 driver) for 1 months= 12

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Personnel visiting each activities/month
	knowledge, skills & experiences -If they are targeted & trained, they can provide better disease surveillance, management & reporting				
11. Building improved market facilities	Goat market facilities at waghemira areas are poor	One goat market shade will be constructed	10,000 USD (**50% from the district communities, 5000 USD)**	Ziquala Ziqual district/Tsitsiqa town	3 trips (1 researchers + 1 driver) for 3 months= 18

NB. Regarding the personnel needed, a researcher can do a series of tasks in a single trip, so there will not more trips as listed as it can be adjusted on day to day plan.

Intervention plan for Menz sheep site

Scenario (what the team is looking for – goals, interventions, suitability limitations):

Enhancing the productivity of Menz sheep through integrated community-based breeding, feeding, health and market interventions

Outline of the desired integrated package:

- Strengthening the existing community based breeding
- Scaling out breeding interventions to surrounding community
- Establish additional at least 3 nucleus flock in Menz area
- Implement animal health and feeding packages in selected areas
- Implement feeding interventions in selected areas
- Strengthen market infrastructure and availing market information
- Mainstreaming gender in all interventions
- Promote hygienic practices and branding of Menz sheep and meat

Package component interventions [names of interventions]	**Justification and reasoning for that intervention / fit to overall site vision**	**Deliverables of this specific package to the site [targets]**	**Essential actions for this site to be able to deliver this package [expertise; resources; etc]**	**Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?**	**Budget in Birr**
1. Community-based breeding programs enhance livelihood and deliver genetic gains	Traditional breeding and low productivity Relevant approach for low input production system	Best sires produced (about 60) Genetically improved lambs produced Additional 3 community established	• Implement selection • Animal show/field day • Site selection and designing how scale out • Training and awareness • Animal identification, baseline data recording, • Resources (ear tag, ear tag applicator, weighing equipment and collecting yard)	August and March: Centre Researchers March: center researcher and stakeholders May-June: Center researcher July: Center researcher June – August: Center researcher	12000 (per diem) 28000 (per diem,, refresh.) 16000 (per diem) 40100 (training) 9600 (per diem) 62400 (enumerators) 86600 (supplies & equipment)
2. Ultrasound to diagnose pregnancy and field AI	Enhance genetic improvement	Genetically improved 1360 lambs produced through AI supplemented with natural mating	• Pregnancy testing • Oestrus synchronization • Insemination • Testing pregnancy • Resource: PGF2alfa, ultrasound, AI equipments	April : Center researcher and extension March-April: Center researcher and extension March-April: Center researcher and extension March-April: Center researcher and extension	72000 (per diem) 50000 (AI supplies)

3. Community-based gastro-intestinal tract parasite control in sheep	Internal parasite is major challenge in the area	Mortality and morbidity reduced in the 6 CBBP villages (about 8000 sheep)	• Fecal egg count • Strategic de-worming • Resource (drug and lab equipment)	Monthly: Center researcher Twice per year: Center researcher	28800 (per diem) 12000 (per diem) 80000 (drugs and supllies)
4. Integrated health approach to reduce impact of respiratory disease	Respiratory disease is complex and major challenge	Reduced respiratory disease in the 6 CBBP villages (about 8000 sheep) Causative agent identified	Scheduled vaccination and de-worming Serology test Bacteria culture Resource (vacationer tube, transport media, culture media and reagents)	Twice per year: Center researcher Twice per year: Center researcher Five per year: Center researcher	21800 (lab supplies)
5. Coenurosis control	High prevalence (10 to 20%) in the area No treatment	Reduced mortality and morbidity due to coenuriasis in the 2 CBBP villages and surrounding areas	De-worming dogs Resource: drug, dog restraining equipments)	Twice a year: Center veterinarian and veterinarian from extension	12000 (per diem) 3500 (drugs and supplies)
6. Gender capacity assessment and development for partners	Poor gender understanding	Gender based capacity assessed and developed	Gender-based capacity need assessment Training for actors	May: center researcher July: center researcher, gender expert	6000 (per diem) 6000 (training)
7. Improve women (male and female headed household) participation in the integrated CBBP interventions	Low involvement of women in decision making and resource allocation	Improved women in decision making and resource allocation	Integrate women involvement in all innervations	Throughout implementation of all activities	20000 (training)
8. Enhance market facilities and smart	Low use of market infrastructure and market information	Enhanced use of market facilities and information	• Disseminate best lessons learned from market	After September based on the outcome of existing intervention: Center researcher, extension	14000 (per diem)

marketing information			facilities and smart marketing activities • Facilitate supply of water and feeding trough in the constructed market sheds • Facilitate the establishment of other facilities based on needs		8000 (per diem) 30000 (workshop)
9. Promote better hygienic practice and branding of Menz sheep meat	Low attitude on hygienic practices in slaughtering Return from Menz sheep meat is lower than expected quality attributes	Promoted better hygienic practices Promoted and branded Menz sheep	• Training and awareness creation for value chain actors • Need assessment on preference of Menz sheep • Facilitate and implement promotion and branding of Menz sheep and meat	August to September: Center researcher, health officers August to September: center Researcher October to April: centre researcher and other partners (University, NGOs, Extension, Media)	27200 (training) 27000 (per diem) 40000 (workshop and per diem)
10. Enhance reproductive performance and lamb survival through crop residue (pulse crop)	Poor reproductive performance and higher level of lamb mortality Area has potential for pulse crop production	Enhanced reproductive performance Improved lamb survival	• Site, farmer and animal selection • Awareness creation • Feeding and data collection • Field day	April: Center researcher April: Center researcher May-Augest: Center researcher September: Center researcher	7200 (training) 10000 (enumerators) 14700 Field day)
Additional costs					19200 (fuel) 76410 (contingency) **Total: 840510**

Intervention plan for Horro site

Scenario (what the team is looking for – goals, interventions, suitability limitations):

- Capacity Development: enhancing the capacity of sheep producers and different actors in the value chain in terms of husbandry, health, and cross-cutting issues (Gender)
- Breeding: Improving productivity of Horro sheep through selective breeding, efficient use of rams and use of reproductive technologies
- Feeding: Improving productivity of Horro sheep through selective breeding, efficient use of rams and use of reproductive technologies
- Disease prevention/control: To improve production performance of sheep through control and prevention of disease risks
- Marketing: Provide access to improved market facilities and enhance farmers' selling powers

Outline of the desired integrated package

Capacity Development:

- organizing the different actors in the sheep value chain for Horro sheep
- preparing training materials/modules
- implementing the training and awareness creations

Breeding:

- Scaling up of the existing CBBP
- implementing the Hormone assisted estrus synchronization and pregnancy diagnosis and AI protocol in the CBBP flocks
-

Disease prevention/control:

- identification and testing of different known drugs
- integrating farmers' knowledge to the modern disease control measures

Marketing:

- selection of major and big sheep markets
- Construction of shades, feeding troughs, watering troughs…

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
Capacity Development				
1. Tapping the knowledge of women in small ruminant disease surveillance and management - Coenurosis control- Break the cycle; Integrated herd health approach to reduce impact of respiratory diseases - Community-based gastro-intestinal tract parasite control in small ruminants - Responsible use of anti-microbials for small ruminants	As the women are more close to the sick and weak animals they are expected to have skills, knowledge and experiences than other HH The disease was identified as a major problem in the site There is a wider report and observation on anti-microbials resistance	Improved Knowledge and skill on disease symptoms/diagnosis and management. Knowledge gained on the cause, transmission, and control options of the disease Improved understanding on responsible and prudent use of veterinary drugs	- establish women and men sheep diseases surveillance, management & reporting groups - Preparing manuals/modules, reporting formats Preparing manuals/modules Delivering trainings on cause, transmission, and control options of the disease Training on rational use of drugs for farmers, extension agents, CAHW's, veterinarians and drug providers	- July-August/2017 - Horro - ICARDA/ILRI/Bako ARC/H/G/Zone and Horro district LFRDB (Gender Focal persons, Gender CD committee) - 80,000.00 ETB (Two hundred farmers from two villages will be trained)
Breeding				
1. Community-based breeding programs enhance livelihoods and deliver genetic gains	The system is already tested and it is working. So it needs to be scaled-up	Functional breeding cooperatives Increased flock productivity and farmers' incomes Increased consumption of animal source foods	Establishing new breeding cooperatives in different villages Strengthening the existing ones	- April/2017 – April/2018 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB - 350,000.00 ETB (Two new cooperatives will be established)
2. Field solution for artificial insemination of Horro sheep - Ultrasound to diagnose pregnancy and reproductive disorders in sheep	AI is believed to fasten the gene transfer and efficient use of the selected rams	Improved Breeding rams used efficiently Increased selection intensity	Pregnancy diagnosis Hormone assisted estrus synchronization Semen collection, processing and insemination	- May/2017 – April/2018 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB - 120,000.00 ETB (1,500 ewes will be inseminated) - ETB (purchase of ultrasound)
Feeding				-
1. Urea treatment to improve the nutritive value of crop residues	There is ample amount of crop residue in the site and similarly there is shortage of feed during the dry seasons.	Increased intake of poor nutritive value feeds/crop residues	Treatment of different crop residues with UREA	- November - April/2018 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
	So, this intervention will help solve the problem		Feeding of the treated straws/crop residues	- 70,000.00 ETB
2. Enhanced sheep fattening with modified feeding and management practices	There is high demand for fattened sheep, especially during the major holydays	Modified use of different feed combinations for sheep fattening adopted	Preparation of different rations using locally available feed resources Identification of culled rams, castration and deworming Conducting actual feeding, creating market access	- September - April/2018 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB - 100,000.00 ETB
Disease prevention/control				
1. Select effective fasciolicides to control sheep liver fluke	Liver fluke is identified as a major risk factor in triggering sheep productivity in Horro	Sheep mortality because of liver fluke reduced Sheep productivity improved Food security and in general livelihoods improved	Identifying different fasciolicides Identifying infected animals and grouping for evaluation of different drugs and the control ones Conducting the deworming and evaluation at different times	- July/2017 - November/2017 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB - 60,000.00 ETB
2. Integrated herd health approach to reduce impact of respiratory diseases	Respiratory diseases, manifested in the form of pneumonia and pasterullosis has been identified to be the most important diseases	Adequate vaccination coverage for key respiratory disease constraints secured Treatment of diseased Sheep due to respiratory disease problem with effective drugs	Introduce household level animal health data collection Follow-up of cases through post mortem analysis and appropriate sample collection for laboratory analysis Setup effective vaccination and preventive treatment practice for major respiratory diseases Establish M&E systems	- August/2017 - April/2018 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB - 80,000.00 ETB
Marketing				
1. Building improved market facilities	Market development increases marketing efficiency and reduces market transaction Construction of market sheds considerably increases market	Increased time stay of sellers in the market Increased bargaining power of the farmers/sellers	Selection of markets sites with zone and district administration Key role sharing among the actors on the use and administration of the shade	- September - December/2017 - Horro - ICARDA/ Bako ARC/H/G/Zone and Horro district LFRDB

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
	participation of small ruminant keepers	Improved access to feed and water for the sheep during their stay in the market	Constructing the shade along with the different structures (feeding, watering troughs, office)	- 300,000.00 ETB (One shade for sheep marketing will be constructed at Geba-Senbata)

Intervention plan for <u>Bonga</u> site

Scenario (what the team is looking for – goals, interventions, suitability limitations):

<u>To enhance sheep production and productivity through integrated and complementary technologies in Bonga area</u>

Outline of the desired integrated package

<u>Strengthen CBBPs and enhance HHs participation</u>

- Introduce Field solution for AI and ultrasound
- Implement improved techniques that help to improving reproductive performance and reducing lamb mortality
- Introduce improved practices that help to control Coenurosis
- Community based gastro-intestinal tract parasite control in small ruminants
- Improved feeding technologies for improved fattening practices
- Assess and develop gender capacity of VC actors
- Improve women's participation in sheep production and productivity improvement interventions
- Facilitate construction of improved market facilities

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Budget (birr)
1. Community based breeding programs	-potential sheep breed and population -CBBP is established, in progress and out scaled but needs to be supported	-15 coops. targated -facilitation and institutional strengthening:	-interaction with woreda level offices, coop leaders, HHs & other partners/actors -expertise (coops, legal, …) -financial resources	-2017-2018, Bonga, -all breeding coops -research centre, woreda level offices, coop leaders, HHs & other partners/actors	90,000

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Budget (birr)
		established breeding cooperative union -increased members of in established coops -enhanced ram production capacity of coops -facilitate issuing of patent right		-IBC (regional and national) -BoLF (regional, zonal…)	
2. Field solution for AI and Ultrasound	-to disseminate improved Bonga rams inside and outside the communities -to improve reproductive efficiency in flocks participating in CBBP	-3 coops. are targeted -more HHs have access to improved genetics -reduction of reproductive losses	-setting up field lab. For artificial insemination and reproductive techniques	-2017-2018 -setting up the lab. (SARI, ICARDA) -1000 inseminations (SARI, ICARDA)	80,000
3. Improving reproductive performance and reducing lamb mortality	-Pre-weaning death of lambs is series problem - reproductive wastage due to infectious diseases and abortion is the most important constraints in the site	-7 coops. targeted -improved survival of lambs -identified infectious cause of reproductive disorder -reduced reproductive disorder and associated loss	- developing and implementing proper reproductive and health management -systematic follow-up on the cases of neonatal mortality to identify the causes -longitudinal impact monitoring on lamb survival -identifying causes of abortion through systematic outbreak investigations -design and implement control options for important causes of abortion	-2017-2018 - Bonga; in selected coops. - SARI (BARC), ICARDA	90,000
4. Coenurosis control	-identified as one of the major SR disease constraints in the site	-5 coops. targeted -reduced morbidity and mortality due to the disease -improved awareness of the community about the cause, transmission and control	-establish wider awareness creation campaign -Introduce deworming of dogs and stop feeding sheep heads to dogs -monitoring and document incidences of coenurosis	-2017-2018 -Bonga; in selected coops. -SARI, ICARDA, BoLF, cooperative office	75,000

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Budget (birr)
		-improved overall dog health			
5. Community based gastro-intestinal tract parasite control in small ruminants	-evidence to the high occurrence of GIT parasite problem	-15 coops. in 4 woredas are targeted - Reduced morbidity and mortality due to GIT parasite - Improved knowledge of farmers on internal parasite management	-Training for farmers, extension agents, drug providers about causes -strategic anthelmintic treatments of nematodes and trematodes -monitoring impacts	-2017-2018 -Bonga (15 coops.) -SARI, ICARDA, BoLF (zone, woreda)	100,000
6. Improved feeding technologies for improved fattening practices	-low productivity of animals due to poor quality of feed/natural pasture -Desho grass is suitable for small holder farming system -longer period of traditional fattening practice -fattening based on locally available feed is profitable	-4 coops. (2 existing 2 new), 240 HHs -developed Desho grass in ram use groups -increased participants on improved fattening practices	-awareness creation on development and use of improved forage -ration formulation using local available feedstuffs -input facilitation and market information	-2017-2018 -Bonga; 3 cooperatives -SARI (BARC), ICARDA	-85,000
7. Assess and develop gender capacity of VC actors	-low gender capacity exist with VC actors	-about 6 partner offices/organization, 30 people -identified priority gender capacity areas -designed capacity development interventions -Gender capacity of partners enhanced	-gender focal persons and specialist -Initial need assessment -training materials design and delivery	-2017-2018, -Bonga, - selected staff, partners, coop leaders -research centre, woreda level offices, coop leaders, HHs & other partners/actors, socio-economics Dpt	-80,000
8. Improve women's participation in sheep production and productivity improvement interventions	-gender inequality exist b/n men and women sheep producers	-identified women's participation status in breeding coops -women in male headed HHs and	-gender focal persons and specialist -Assessment of women participation status	-2017-2018, Bonga, -2017-2018 - Bonga, selected breeding coops	-40,000

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site [targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?	Budget (birr)
		female HHs participation improved			
9. Facilitate construction of improved market facilities	-lack of market facilities -unemployment problem for youth	-facilitated interaction among key actors - facilitate establishment of youth groups for market shade constriction	-3 market shades in three woredas - socio-economics team of the centre - concerned woreda level offices	-2017-2018, Bonga, - all breeding coops	60,000 (for facilitation)

Intervention plan for Doyogena site

Scenario (what the team is looking for – goals, interventions, suitability limitations):

The goal of the overall interventions will be strengthening community based breeding program of sheep integrated with better management (nutrition, health, marketing and equal gender participation) for improved livelihoods of the farming community which are current land extreme land shortage and high human population.

Interventions

Initially, 16 interventions were selected by the team but considering the available resources, the internvetions have been reduced to 12. Out of the 12 intervention: 2 under gender, 3 animal health, 2 feed, 2 marketing and 3 breeding. are mentioned below to address the gaps on health, breeding, feeding, marketing with proper gender involvement.

Suitability limitations

Include time allocation for different activities, fair women participation and market demand fluctuation

Outline of the desired integrated package:

The already ongoing CBBP will be strengthened and used as entry point for other interventions. There are interventions which already commenced during the previous phase of the project. These are community based GIT parasites control, integrated herd health approach to reduce respiratory diseases, artificial insemination in connection with ultrasound, sheep fattening and pulse crops with food-feed traits to support sheep productivity. In addition to the ongoing projects, others will start as new activities and with high integrated with the ongoing and the other interventions.

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
1. Tapping the knowledge of women in small ruminant disease surveillance and management	Women have ample knowledge and experience on this issue because they spent much time with small ruminants, but it is mostly ignored. It is important to collect these knowledge and test scientifically.	At least 20 men and women groups will be established based on the context in the ground, group of champions will be selected and the experience will be advocated further, new method of disease surveillance and management will be identified	Establish two groups of men and women, they will get similar inputs like reports formats, training, then both groups will be monitored on how they prepare reports and use the knowledge they got. Then, results will be analysed, then, the experience sharing and feedback sessions well be arranged.	When: May 2017-Sept 2017 Where: in 2 CBBP of Doyogena Who: By Animal Health and breeding, nutrition Researchers in Areka center Scale: 120 women will participate Cost: 50,000 Actor: SARI, ICARDA, Woreda BOLF
2. Community Based gastro-intestinal tract parasite control	GIT parasite is a big challenge for small ruminants in Doyogena, affecting productivity and survival. For the control of parasites, the whole community in a locality (village) should be participated given that there can be recontamination of the pasture with untreated animals.	At least two GIT control mechanisms will be selected and the number of infected animals will be reduced by 50%. At the end of the implementation of the intervention the farmers' cooperatives will follow strategic deworming practices for their herd.	Assessment of the prevalence, fecal sample collection and BCS before treatment, application of the treatments, fecal sample collection and BCS after the treatment. Community awareness on the importance of strategic deworming will be give emphasis. The timing of the deworming is will be before start and at the end of the rainy season.	When: May 2017-April 2018 Where: in 2 CBBP of Doyogena Who: By Animal Health Researchers in Areka center Scale: 300 sheep will participate through random sampling Cost: 70,000 Actor: SARI, ICARDA, Woreda BOLF
3. Integrated Herd health approach to reduce impact of respiratory diseases	Respiratory disease is a big challenge for small ruminants in Doyogena, affecting productivity and survival. The causes of respiratory disease in small ruminant is complex and needs integrated approach involving improved animal husbandry, vaccination, proper clinical management and biosecurity	Integrated health approach will be adopted and the impacts in terms of morbidity and mortality will be reduced compared with the baseline data. Vaccination calendars will be developed	Assessment of the prevalence, data recording per HH will be done, Sample will be collected from nasal fluid and post mortem for laboratory diagnosis, the prevention measures will be applied	When: May 2017-April 2018 Where: in 2 CBBP of Doyogena Who: By Animal Health Researchers in Areka center Scale: 300 sheep will participate through random sampling Cost: 70,000 Actor: SARI, ICARDA, Woreda BOLF

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
4. Improving the reproductive performance of small ruminants	Reproductive disease is a big challenge for small ruminants in Doyogena, affecting productivity and survival.	After interventions applied, abortion will be reduced	Assessment of the prevalence, the prevention measures will be applied such as awareness creation and husbandry improvement	When: May 2017-April 2018 Where: in 2 CBBP of Doyogena Who: By Animal Health Researchers in Areka center Scale: 300 sheep will participate through random sampling Cost: 70,000 Actor: SARI, ICARDA, Woreda BOLF
5. Training women in small ruminant husbandry and health	Women participation in research and development is very limited. Training them will empower and encourage them for active involvement. It will also help us to recognize their contribution.	The continuous training and house to house follow up will increase their involvement in CBBP.	Identification and listing of potential women participants, designing the training approach and selecting the right person to train them. Providing training at least in 3 phases and making house to house follow up at least once in a month	When: May 2017-December 2017 Where: in 2 CBBP of Doyogena Who: By Animal Health, Nutrition and breeding, nutrition Researchers in Areka center Scale: 120 women will participate Cost: 60,000 Actor: SARI, ICARDA, Woreda BOLF
6. Pulse crops with food-feed traits to support livestock productivity	It is obvious that feed and land shortage is a big constraint in Doyogena. It is economical to use existing land for both food and feed.	Development of fababean based ration for fattening, Oat and vetch will also planted multiplied. On farm fattening using faba bean based diets will be carried out.	Seed collection from other centers, farmer identification, land preparation, planting, and weighing straw and undertaking feeding trial	When: June 2017-April 2018 Where: in 2 CBBP and Doyogena station Who: By Animal Nutrition Researchers in Areka center Scale: 24 sheep will participate Cost: 80,000 Actor: SARI, ICARDA, Woreda BOLF
7. Enhanced sheep fattening with modified feeding and management practices	In order to tackle feed shortage, it is done to use available resources by feed formulation. Farmers perception on already formulated feed is important to finalise the package and prepare policy brief.	120 farmers opinion on already formulated and tested feed will be collected and analysed	Assessment by using questionnaire, focus group discussion will be used	When: Sept 2017-April 2018 Where: in 2 CBBP and Doyogena station Who: By Animal Nutrition Researchers in Areka center Scale: 30 farmers Cost: 60,000 Actor: SARI, ICARDA, Woreda BOLF
8. Building improved market facilities	The inefficiency of open markets is proved by studies. So, market facilities have positive	1 market facility will be built in central places of Doyogena district only for sheep marketing.	Building materials will be purchased and the contruction will take place.	When: June 2017-April 2018 Where: in Doyogena market place Who: By Animal breeding Researchers in Areka center

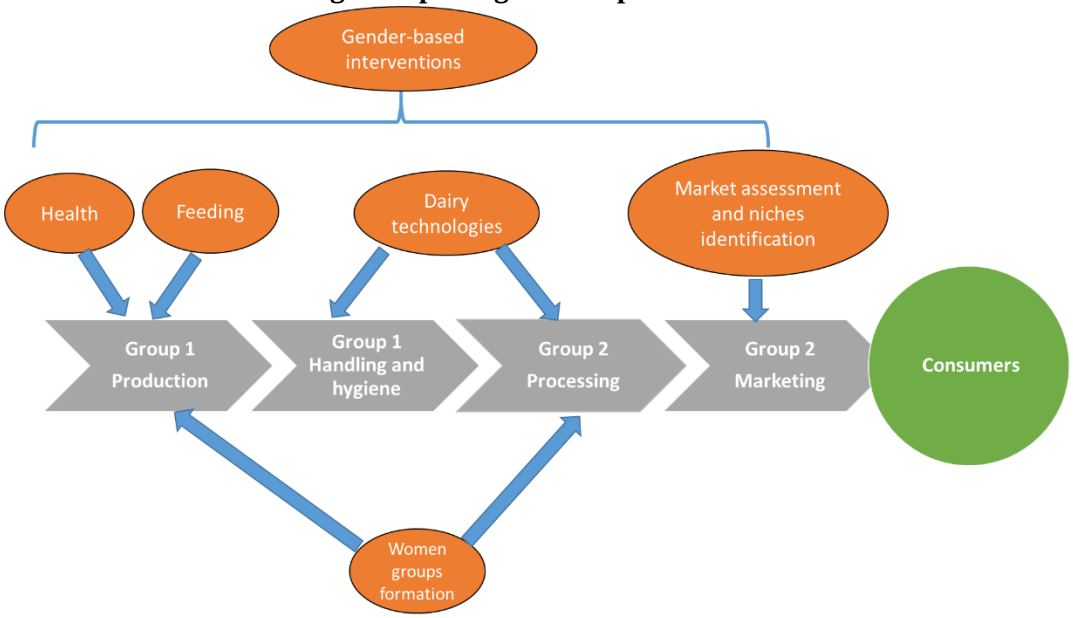
Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
	impact on the price of sheep for better income.			Scale: 500 farmers and 5 cooperatives will benefit Cost: 70,000 Actor: SARI, ICARDA, Woreda BOLF
9. Field solution for artificial insemination	The demand for rams is increasing from time to time. It is impossible to distribute enough number of rams for farmers in the region. Ram mobilization is the slow process for genetic improvement. The reproductive disease and lambing schedule issues make the AI idea very crucial.	It is important to enhance the number of ewes inseminated and lambs born by 100% in order to master the procedures and benefit the farmers involved. It is also output to train woreda experts so that they can adopt sheep AI. 60 woreda experts will train for scale out of the technology.	AI facilities are almost fulfilled in Doyogena. It is only important to buy generator and involve more ewes in the future. Interested woredas will nominated participants for sheep AI training	When: July 2017-April 2018 Where: in Doyogena station Who: By Animal breeding and health Researchers in Areka center Scale: 750 ewes will be inseminated Cost: 60,000 Actor: SARI, ICARDA, Woreda BOLF
10. Ultrasound to diagnose pregnancy and reproductive disorders in small ruminants	Abortion due to misinformed injection of enzaprost is a big challenge for animals, farmers and researchers. PD ultrasound also helps to cull animals with reproductive disorder to avoid resource losses. It is important to prevent slaughtering of pregnant ewes.	Man made abortion will be reduced. Repeat breeders and others with reproductive disorder will be removed from breeding stock.	It is important to practice the manipulation of PD ultrasound by the researchers. It will be included in AI training of extension experts. More apparatus is required to handle many animals at the same time and to train many experts.	When: July 2017-April 2018 Where: in Doyogena station Who: By Animal breeding and health Researchers in Areka center Scale: 1000 ewes will be checked for PD, reproductive problems Cost: 60,000 Actor: SARI, ICARDA, Woreda BOLF
11. Community based breeding program to enhance livelihoods and deliver genetic gain	Community breeding program in Doyogena started since 2013, the result is encouraging but still the potential of the breed is not optimumly achieved, and limited number of	The CBBP work will continue with the same procedure, It is expected Increasing member of each cooperatives by 20 percent and Mating of ewes with unselected animal will be reduced. Selection intensity will increase,	Training will be provided for new members, purchasing in puts(ear tag, applicator, merker and weighing scale) for sheep breeding program. The cooperatives will get technical support from researchers	When: April 2017-April 2018 Where: in 2 CBBP of Doyogena Who: By Animal breeders Researcher of Areka center Scale: 500 farmers Cost: 60,000 Actor: SARI, ICARDA, Woreda BOLF

Package component interventions [names of interventions]	Justification and reasoning for that intervention / fit to overall site vision	Deliverables of this specific package to the site[targets]	Essential actions for this site to be able to deliver this package [expertise; resources; etc]	Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?
	farmers is involved. These affected the magnitude of selection program and breed improvement.			

Intervention plan for <u>Shinille</u> site

Scenario (what the team is looking for – goals, interventions, suitability limitations):
<u>Empower women through market oriented dairy (Goat) milk production</u>

Outline of the desired integrated package: Conceptual frame work



Package component interventions [names of interventions]	**Justification and reasoning for that intervention / fit to overall site vision**	**Deliverables of this specific package to the site [targets]**	**Essential actions for this site to be able to deliver this package [expertise; resources; etc]**	**Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?**
1. Markets • Smart marketing along small ruminant value chains	• Women need to be cooperated in order to supply larger quantities of milk and milk products to the market • Processor group need to understand the milk market and it's niches	• Formation of two(2) women groups • Training of groups on collective action • Milk market niches identified • Milk market needs assessed	• Training in market orientation by social economists • Voluntary group formation • Milk market needs assessment	1month When: 1 and 2 months Where: Shinille By whom:1 ICARDA-IRS;2NARS and 2 enumerators Scale: 2 women groups Costs: Training and group formation 8 days= 10800+9000=20,000 Market need assessment for 10 days= 15,000
2. Health • Parasite and gastrointestinal control • Respiratory disease • Reducing lamb and kid mortality	• High disease infestation(especially internal and external parasites) in goats	• Disease free animals • Training on disease control and management	• Training on disease control and management • Presence of Veterinarians • Inputs of drugs and vaccines etc	1 year (Months 2-5) When: 3 trainings Where:Shinille By whom: 1 ILRI-IRS; 1 NARS; 1 vet Scale: 3 trainings Costs: 60,000(20,000 each) Inputs (drugs, vaccines) for 300 goats
3. Feeds • Feeding for increased milk production and quality • Feeding for improved fertility • Feeding for improved health	• Feed shortage limits doe production and productivity	• Optimized feed packages • Training on feeding management and improved practices • Pant/fodder species with potential to decrease parasite load • Increased milk production	• Feed assessments to develop feed calendar • Training on improved feeding practices by nutritionists • Ration development	1 year When: month 1-4 and month 6-12 Where: Shinille By whom: 1 ICARDA-IRS; 1 NARS and labs Scale: 1 Training for feed assessment, Costs:30,000 birr Lab analysis=5000 Training cost for improved feeding practices= 4500 Ration development=ICARDA 2 days
4. Dairy technologies Group 1. Milking management • Hygiene and handling • Cooling + storage technologies Group 2.Processing	• Milk spoilage • Absence of optimal facilities of storage + cooling • Need for prolonged shelf life of milk	• High quality milk • Production packages for Ergo(Yoghurt) and Kibe(butter) production for targeted market niches	• Trainings in milk hygiene ,handling and processing • Training of trainers/extension for the producers	9 months When: month 2-3 Where: Shinille By whom:1 ICARDA-IRS; 2 NARS Scale: 1 training for 10 days Costs: 20,000

Package component interventions [names of interventions]	**Justification and reasoning for that intervention / fit to overall site vision**	**Deliverables of this specific package to the site [targets]**	**Essential actions for this site to be able to deliver this package [expertise; resources; etc]**	**Timeframe and actors to implement the intervention (when, where, and who by). Any indication of scale and costs?**
• Simple smokers • Thermometers • Pasteurization • Milk fat separation	• Need for value addition to meet market demands			Processing training cost+ inputs=30,000
5. Gender • Gender matters in small ruminant value chain transformation in Ethiopia • Assessing and strengthening the gender capacities of value chain actors and partners	• Limited awareness and sensitivity of gender-related issues along the value chain	• Assessment of problems, constraints and opportunities of women in the dairy goat value chain training • Gender awareness of value chain actors	• Training • Assessment of problems, constraints and opportunities of women in milk production in the dairy goat value chain	3 months When: month 1-3 Where: Shinille By whom:1 ICARDA-IRS; 2 NARS ; 2 enumerators Scale: 1 training for 5 days=10,000 1 training for 4 days =30,000 1 training for 4 days= 30,000

Table 1. Overview of best bet intervention testing ongoing by site in 2016/2017

Planned interventions	**Horro**	**Menz**	**Doyogena**	**Atsbi**	**Bonga**	**Waq Abergelle Amhara**	**Tanqua Abergelle Tigray**	**Borana Yabelo**	**Shinelle**
Smart marketing		x							
Sheep fattening follow-up			x		x				
Milk value addition						x	x	x	
Community-based breeding programs	x	x	x	x	x	x	x		
Farmer cooperatives	x	x	x	x	x	x			
Artificial Insemination	x	x	x		x				
Demonstrations of dual purpose grain legumes									
Forage dissemination (desho grass)			x						
SR Health									
Coenurosis control				x			x	x	
Control of reproductive diseases			x		x	x			
Herd health for Respiratory diseases	x	x	x	x	x	x	x	x	
Community-based GIT	x	x	x		x				
Disease awareness field trainings	x	x	x	x	x	x	x	x	

Table 2: Overview on interventions selected by site temas durinf SmaRT workshop

Planned interventions	**Horro**	**Menz**	**Doyogena**	**Atsbi**	**Bonga**	**Waq Abergelle Sekota**	**Tanqua Abergelle Tigray**	**Borana Yabelo**	**Shinele (maybe via PCDP/RPLRP)**
Smart marketing		x					Market linkage (outgrower?)		x not feasible in the remaining time
Market facilities		x	x promote with distric offices		x promote with district offices	x promote with district offices			
Sheep fattening (follow-up)	x	Stopped because seems not profitable	x incl. research componen t	x	x incl. researc h compo nent				x Feeding packages for reprod, health & milk
Milk processing (full package incl milk hygiene & cooling)						x	x	x more cattle than SR	x
Community-based breeding programs	x	x	x	x	x	x	x expansion to 2 more villages	x	
Artificial Insemination	x	x	x	x breedi ng not ready	x	x	x		
Ultrasound as management tool, combine as possible business model	x	x	x	x	x	x	x		

Planned interventions	**Horro**	**Menz**	**Doyogena**	**Atsbi**	**Bonga**	**Waq Abergelle Sekota**	**Tanqua Abergelle Tigray**	**Borana Yabelo**	**Shinele (maybe via PCDP/RPLRP)**
(investment to be done by sites or somebody else)									
Business models									
Pulse crops/Demonstrations of dual purpose grain legumes		x	x			x needs assessment first	x		
Forage dissemination (desho grass)									
Urea treatment (cap dev)	x			x		x			
Gender									
Assess and develop gender capacity of VC actors		x			x	x			x & gender matters? training
Training women in sheep husbandry & health (SLU)		(x)	x	x	(x)	x		X	
Improve women's participation in sheep production and productivity improvement interventions (CBBP)		x see above			x see above				
Tapping the knowledge of women in small ruminants disease surveillance and management (champions)	x Cap Dev		x					X	
Health									
Coenurosis control	x Cap Dev	x		x	x		x	X	
Herd health for Respiratory diseases	x CapDev	x	x	x		x		X	x

Planned interventions	**Horro**	**Menz**	**Doyogena**	**Atsbi**	**Bonga**	**Waq Abergelle Sekota**	**Tanqua Abergelle Tigray**	**Borana Yabelo**	**Shinele (maybe via PCDP/RPLRP)**
Community-based GIT	x CapDev	x	x	x	x		x	X	x
Anthrax (cap dev, dis. Awareness)				x		(x)	x		
Reproductive performance/ Reduce lamb mortality	? basic cap dev? outbreak inv.	?	x	x feeding	x	x	?	x	
Better hygienic practices of meat (check with Kristina) A4NH		x		x				X	
Liver fluke	x			x					
Anti-microbial	x Cap Dev			x		x		x	

*Crosses mark selected interventions (from the site intervention plans); (shaded in yellow: interventions already tested as best-bets in the sites; shaded in green: can be implemented in the sites; shaded in dark orange: interventions that may be taken up by other projects; shaded in red: not feasible with SmaRT funding