Technology Fact Sheet for Adaptation

Technologies in the animal husbandry

B.4. Producing supplement feed for winter and spring [i]	
1. Introduction	Mongolia is experiencing more intense warming than the global average because air temperature has increased by 2.14 ^{0}C in the past 60 years. Due to warming, the cool season has shortened and the warm season became longer. But winter precipitation has a tendency to increase and summer drought becomes more frequent which both have negative effects on animal husbandry. To ensure sustainable livestock production, supplement feeding with high protein and nutrients is required for livestock for 200-240 days of winter and spring season.
1. Technology characteristics	Many countries produce high protein feed for livestock. The Research Institute of Animal Husbandry piloted and introduced technologies to produce supplement feed using renewable natural plant resources. Researchers estimated that only 40-50% of required daily intake is taken from pasture in winter and spring seasons. Also only 20-25% of the required protein is obtained from pasture. Consequently, animals lose 25-35% of gained weight and become weak during these seasons and deaths occur. So, supplement feed with protein and nutrients is needed for livestock during harsh weather and under climate change as the frequency of harsh winters is expected to increase. The technology can contribute to better feed of animals in winter and spring lean periods. Specific plants which have low preference by animals could be raw materials for supplement feed. It can be mowing and with additianal substances as supplement feed. There are low palatable plants such as *Urtica L, Chenopodium L, Artemisia L, Corispermum L and Iris* L etc, grown in summer and autumn in all regions of the country. These plants can be used as raw materials for producing supplement feed with 9-10 MJ exchange energy and 200-250 mg carotene per kg.
2. Country specific applicability and potential	There are many locally known methods for producing supplement feed for animals. These methods should be studied and the localized technology for producing supplement feed should be defined and tested. This technology requires 6-8 years to be introduced in all *soums* and *aimags*.
3. Status of technology in country	Researchers of the Livestock Institute of Mongolia have done some research on producing supplement feed using renewable vegetation resources and experimented in local contexts.
4. Benefits and impact on the country development ✓ Economic (- Job creation; - Investment)	According to the census in 2011, there are 155,000 herding families and 328,000 people who would benefit from the technology implementation. Also, an increase of livestock production would lead to improved food security for the population and supply of raw materials to light industries. Positions such as forage experts and workers of fodder producing factories would be created.

✓ Social (- Income generation; - Education; - Health) ✓ Environmental	Herders and forage factory workers would benefit directly because of increased profit. Training can be facilitated in classes as well as through distance learning. The Government policy on 'supplying population with ecological food' would be supported by the technology implementation.
5. Climate change adaptation benefits	Due to climate change, pasture biomass has been degraded, the number and quality of palatable plants declined in almost all aimags and soums. A climate change adaptation study revealed that animals' weight is decreasing and production is dropping because of a lack of forage. Greenhouse gas emissions will be reduced while livestock will be fed with high quality supplement feed in winter and spring.
6. Financial Requirements and Costs	**The total required funding 2.9 million USD for investment of feed producing factories and facilities.** From International agencies – 1.7 million USD State budget - 0.7 million USD Private source - 0.5 million USD
7. Institutional requirements	There are opportunities to produce such fodder in all aimags and soums and by any herders.

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment For Climate Change Adaptation– Mongolia. You can access the complete report from the TNA project website http://tech-action.org/**