

**INTERNATIONAL TRAINING – CUM – DEMONSTRATION WORKSHOP ON ANIMAL
BY-PRODUCTS UTILISATION, CENTRAL LEATHER RESEARCH INSTITUTE
(CLRI), MADRAS (INDIA),
JULY 25 - AUG 06, 1994**

PARTICIPATING COUNTRIES : 5

NUMBER OF PARTICIPANTS : 12

A 12-day Training – cum – Demonstration workshop on Animal By-Products Utilisation (Slaughter House Waste) took place at Central Leather Research Institute (CLRI), Madras, India during July 25 – August 6, 1994. The Third World Academy of Sciences (TWAS) and the United Nations Development Programme (UNDP) under their Integrated Leather Development Project supported this event. Even though the nominations were received from 11 member countries of the Centre, including Afghanistan, Ethiopia, Pakistan, Peru and Syria, only 6 participants beside those from India could attend the event. These participants were respectively from Bangladesh (Dr. M. Azizur Rahman of the Central Leather Division of Bangladesh Council of Scientific & Industrial Research Laboratories), Malaysia (Dr. Mohd. Omar Ab. Kadir of the School of Industrial Technology of Universiti Sains Malaysia in Penang and Dr. Dahlan bin Ismail of the University of Agriculture in Selangur), Nepal (Mr. Himmat Shrestha of Ratna Feed Industries and Mr. Manik Ratna Kansakar of Nepal Sausage Factory Private Ltd, Kathmandu) and Uganda (Mr. Jahan Nganga of the Department of Animal Production, Ministry of Agriculture, Animal Industry and Fisheries).

Dr. S. Ramachandran, former Secretary to the Government of India in the Department of Biotechnology, inaugurated the workshop. The programme of the workshop included 22 lectures and 26 practical demonstrations of the processes on pilot plant, apart from the technical visits to the glue factory, meat processing plant, bone crushing unit, etc. and covered the utilisation of all the non-edible tissues like bones, hooves, rumen digesta, horns, hair and feather. These tissues constitute almost 45% of the live weight of the animal which are invariably allowed to be wasted in most developing countries due to lack of appropriate technologies for processing and utilisation of animal by-products under socio-economic conditions prevailing in these countries. It was brought to attention or awareness that these byproducts can provide useful cost-added products and raw materials, which have proved to be of great economic value.

During this workshop, the following by-products were found to be useful:

- Blood - It could be mixed with condemned carcasses and slaughterhouse offal and processed in dry renderer into Meat cum Blood Meal.

- Rumen - Contents could be converted by ensiling techniques into useful feed components for cattle, sheep and swine.
- Condemned Offal - These along with bones could be converted into Meat cum Bone Meal either by dry rendering or wet rendering.
- Bones - Deproteinised bone meal could be prepared by digesting the crushed bones in a bone digester. Glue could be obtained as a by-product during the process.
- Hair - Cattle tail hair is used for manufacturing brushes in India. However, in many countries particularly in Africa, the hairy tail end is cut and thrown away as waste.
- Horns and Hooves - These can be used for making useful fancy articles like buttons, combs, etc. They can also be converted into raw or steamed horn and hoof meal.

In conclusion, it was observed from the workshop that animal by-products are either wasted or under utilized due to lack of:

- Awareness by public and meat traders;
- Appropriate technologies suitable under social-economic conditions; and
- Modernization of Abattoirs and Meat Processing Plants.