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GMP IMPLEMENTATION IN MEAT AND SLAUGHTER PLANTS

KOSOVO CLUSTER AND BUSINESS SUPPORT PROJECT

May 04, 2007

This publication was produced for review by the United States Agency for International Development. It was prepared by the KCBS project team of Chemonics International Inc. based on a Final Report prepared by Short Term Technical Advisor, Ms. Katerina Kostadinova.

GMP IMPLEMENTATION IN MEAT AND SLAUGHTER PLANTS

THE REPORT DESCRIBES THE MEASURES THAT MUST BE TAKEN BY EXISTING MEAT PROCESSORS AND SLAUGHTERERS IN KOSOVO TO PRODUCE THE HIGHEST QUALITY PRODUCTS UNDER CONDITIONS THAT MEET EUROPEAN UNION AND OTHER INTERNATIONAL STANDARDS FOR FOOD PROCESSING AND HYGIENE.

Kosovo Cluster and Business Support project – “GMP Implementation in Meat and Slaughter Plants”

Contract No. AFP-I-00-03-00030-00, TO #800

This report submitted by Chemonics International Inc. / May 04, 2007

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PURPOSE OF ASSIGNMENT

The purpose of this assignment is a combined effort to implement work with Kosovo slaughterhouse and meat processing companies in Good Manufacturing Practices (GMP), the foundation for Hazard Analysis and Critical Control Points (HACCP) systems. This technical assistance will help KCBS develop an appropriate program to assist the meat industry in Kosovo to achieve and sustain a more profitable industry by improving the functioning of their meat processing lines to produce the highest quality products for the least cost. This is necessary for them to gain access to EU and other international markets.

Currently, the processors are making mainly products like sausages, salamis, hot dogs, which are based on imported semi finished products. The consultant needs to determine if there are new products lines that can be made using the existing equipment or minor changes in the equipment.

BACKGROUND

The Kosovo meat processing industry is small but is moving to improve the quantity, quality and diversity of its output. Among the several impediments it faces is an inability to meet modern food safety standards under HACCP. HACCP certification by an internationally licensed authority is required for entry into the markets of modern developed nations. The output of local meat processors will quickly exceed volumes that can be consumed locally, meaning they must export to survive. This may be a positive development, because exports should stimulate Kosovo agricultural production, employment and incomes. However, the number of export markets willing to receive products that do not meet HACCP standards is shrinking rapidly and will disappear soon.

The foundation of HACCP is GMP. Good Manufacturing Practices (GMP) is a system ensuring the stable manufacture of goods and their conformity to qualitative and quantitative standards. Without a management system in place to ensure that the equipment is used properly in a hygienic atmosphere to create a food product safe for human consumption, capital investments in new physical facilities and shiny equipment is for naught. GMP is that system.

The introduction and implementation of GMP into meat processing facilities is a lengthy, highly detailed and labor intensive process.

EXECUTIVE SUMMARY

Assessment visits were carried out at ten prospective clients: Coral, EU Progres, Arqe & Iko, Meka, Apetit, LGB,Gazi, Lesak Kom, PQS and Buchuk.

All companies were visited on- site and detailed recommendations are given below for each company. In all premises minor or major non conformances were raised regarding process layout with all processors receiving recommendations. GMP's were not implemented anywhere and the companies have different approaches toward production processes and management.

Generally, I have to stress several crucial pre-requisites that were found to be insufficient in all companies:

- no formal training existed for the food handlers,
- no proper suppliers control,
- no regular product analysis,
- no chlorination of the water from the well,
- no traceability system,
- no recall,
- pure waste control management and
- no protection from chemical and physical hazards

Two of the clients, meat processors Arqe & Iko from Prizren and PQS from Vushtri have the best conditions for implementing GMP first and then HACCP. Regarding slaughter plants, especially lamb slaughter plants, LGB Gnjilan and EU Progres Prizren have possibilities to implement GMP considering the layout of the production process but initially they require solving the problem of ownership and then the investments to be made regarding improving of the production process. All four companies were found to have suitable human resources which are crucial for the HACCP and the current owners showed good management commitment to implement this standard. All other meat processors and slaughter plants have smaller capacities and no other lamb slaughtering line exists at this time.

Regarding other requirements for GMP such as additional services there is only one authorized company for Pest Control currently. When meeting with the owner Dr. Zijah Idrizi it was clear that he can service all food processors and their system for pest control is suitable for GMP requirements.

Unfortunately, during my visit no supplier of cleaning chemicals was found, no company for calibration service and there was no routinely scheduled maintenance of the processing equipment. All maintenance was carried out by the employees at the companies according to their decisions. No proper cleaning chemicals were used for cleaning and no cleaning procedures existed. These items are considered to be fundamental in GMP implementation.

On the meeting with Mr. Flamur Kadriu, Chief of Veterinary Public Health Sector, several other issues were stressed that need to be address in the future mainly official control of the import, control during the production processes and product analysis. The only official law for this sector present was Administrative Instruction for certification of slaughterhouses, meat processing plants and their inspection issued by Ministry of Agriculture, Forestry and Rural Development in February 2005. This is consider to be a first step in bring to an end improper slaughtering in the open and moving towards higher standard that is slaughtering in licensed facilities with proper conditions. So far 24 slaughter plants and 8 meat processors got this certificate/ licence. The need of more veterinary inspectors is also recognized by the vet officials and this also will have to be resolved in the near future.

The check list of all GMP is given in Annex 1.

FIELD ACTIVITIES TO ACHIEVE PURPOSES

Fieldwork consisted mainly in visiting specific meat processing and animal slaughtering plants and studying their practices. Ten clients were visited and their existing working conditions evaluated. They all received recommendations on improving the production processes and plant layouts, and were given a check list of GMPs.

RECORD OF DAILY ACTIVITIES

Following is a list of my daily activities during the course of this assignment with details of the activities.

Monday 19th March 2007

Met with Al Wanous and Gursel Arifi of the KCBS Livestock Cluster team. Agenda for visiting processors was set and few changes were made to the one initially prepared.

Visit to Coral Company, Fushe Kosovo

On site visit to the new location formerly owned by an agricultural cooperative consisting of 11 hectares ground and several facilities.

The condition of each building is not satisfactory due to a long period of inactivity.

One of these buildings is planned to be transferred into a meat processing plant and the other a slaughter plant. The refurbishment of the slaughter plant has already started and several mistakes already made since they did not receive any recommendations in this matter. For example improper paint is used on the floors and walls but one major issue that bothered me is the total disorder of the production process layout.

Since the owners could not explain how the slaughtering process will go on we agreed to meet the former workers in order to resolve this matter and also to evaluate the business plan and production layout that is expected to be delivered by Meat Masters Company.

However we were not called for an additional meeting during my STTA.

Tuesday 20th March 2007

Visit to ARQE & IKO Meat Processing Company, Prizren

The factory started in 2004 with installed daily capacity of 4 tons, and approximately 30 workers who process at present 11 different products. Future plans of the company involve building a new slaughtering plant. The facility is located out of the city but is surrounded by several houses that may cause a problem with process control. The boundaries are not determined since the factory does not have its own fence and there is a road going right in front of the dispatch and intake area. The process layout has changed since its beginning and at the moment there is a problem with cross contamination.

All food handlers enter the packaging area and then go to their working positions. I found this incorrect since when they use their lunch break they are passing through the packaging area again and thus can contaminate the finished products. The sector for injecting and tumbling is located in the area that was previously designed for dispatch of the finished products so it is connected directly to the rolled door. This can cause serious problems with temperature control and possible pest infestation.

Freezing chambers are located in the packaging area and cross contamination with the finished products is unavoidable. Even if there is separation, raw meat left for defrosting in this area can over time also contaminate unpacked finished products. At the meeting with the owner this finding was stressed and he mentioned that they are planning to change the

process layout soon; he intends to extend the production area by 200 m2 and open other doors for intake and dispatch.

Future cooperation was agreed and additional visit to the facility arranged for next week when I will be allowed to stay longer during production and make the necessary recommendations.

Visit to EU Progress meat processing and slaughter plant, Prizren

This beef and lamb slaughtering plant was recently awarded a license for operating from the Ministry of Agriculture, Forestry and Rural Development according to the Administrative instruction from 2005. The privatization process is planned to end in April 2007.

There are meat processing activities going on in the area that is parallel with the slaughtering activity. In this regard several cross contamination points were pointed out to the Chief of Production. For the meat processing, since it is not properly laid out, physical segregation is recommended in order to satisfy GMP requirements. It was also suggested to consider relocation away from the slaughter plant.

Although the slaughter plant is old the production process is laid out correctly. Still there are additional things to be covered in the near future if any GMP implementation is to be considered. These include pest control, proper cleaning procedures and cleaning chemicals, glass control, training, temperature control etc.

Wednesday 21st March 2007

Attending Marketing and Linkage Conference and met with several local meat processors. Also met with the EU representative's from Ireland potentially interested in investing in the meat and slaughtering industry in Kosovo.

Thursday 22nd March 2007

Visit to Meka Company in Dragash

Unfortunately this was the biggest disappointment. The owner has been in operation for a long time and has established a good name in the market. It is supposed to be one of the biggest meat processing plants with daily capacity of 6 tons.

The slaughter plant is not satisfying basic GMP requirements. Although the capacity is 7 bulls per shift there was no chamber for suspicious meat and carcasses, which is the oldest regulation when considering beef slaughtering. One of the strangest things was the corridor for the live animals to enter the depot before slaughtering goes through a storage area and very close to the production process. Some other crucial items were not covered at all such as pest control, cleaning procedures, personal hygiene, temperature control at the cooling chambers, no air circulation between carcasses in the cooling chamber etc. This applies also to the meat processing since the same workers are involved in the company.

The meat processing facility operates on two floors connected with an elevator. The second floor is used for thermal treatment and packaging but it is also used for defrosting the frozen raw meat on the floor! The first floor has a door entering directly from the street. The whole process is mixed up with a lot of potential for cross contamination with raw material from processing and also from slaughtering. The position of the raw meat in the freezing chambers needs to be improved since all packages were on the floor and very close to the wall.

The best recommendation for this company is to use the free land near the existing facility and for a new building for meat processing that can easily be connected with the old freezing

chambers. The existing slaughter and meat processing plant does not satisfy the basic requirements for GMP implementation.

Friday 23rd March 2007

Met with the owner of Fauna Company, so far the only company known for pest control, which is one of the essential requirements of GMP. The owner is an experienced veterinarian and offers his full cooperation and knowledge to the clients that are interested in pest control.

Monday 26th March 2007

Meeting at the KVFA with Director of Veterinary Institute in getting information on veterinary procedures and policies and Administrative Instruction for slaughtering

Tuesday 27th March 2007

Visit to Gazi Company, beef slaughtering company, in Giljan

This is a new small plant opened one year ago and is located outside of Giljan.

Beef slaughtering process is done on 2 floors with daily capacity of 9-10 bulls per shift and its layout satisfies the basic requirements for slaughtering. The capacity of the cooling chamber is 10 tons. No cross contamination was found and the premises is suitable if the owner shows interest in GMP implementation.

Several issues were stressed to the owner after on site visit and the main are:

- No chlorination process to the water from the well and no tank in which to do this operation;
- All glass in the facility has to be removed or laminated;
- Lighting has to be protected from breakage or changed with special type;
- Parts of the equipment and working surfaces that are not made from stainless steel have to be changed;
- Wooden shelves in the cooling chamber have to be replaced with food grade plastic or stainless steel;
- Hand washing unit to be replaced with one with an automatic sensor or other proper type;
- Transportation vehicles have to have cooling system when transporting chilled meat.

Visit to LGB, in Giljan

This is one of the best-positioned slaughter plants in the region with 3 lines for slaughtering and one part for processing meat products. Unfortunately lamb and chicken/turkey slaughtering process is not active due to an insufficient number of animals for slaughtering. Thus the only slaughtering line that is operating from time to time is beef slaughtering.

Meat processing is operating regularly for which they received a license from the Ministry of Agriculture, Forestry and Rural Development.

No remarks were given on the process layout but if they start with regular operation several things have to be replaced and checked such as:

- Replacing of the lights with proper ones, considering the proper lux for each sector;
- Protecting or eliminating all glass;

- Checking and calibration of all probes for measuring temperature;
- Thorough cleaning of all equipment, working surfaces, floors, walls and ceilings;
- Refurbishment of workers wardrobes and segregation of personal and working clothes;
- Checking all measuring instruments;
- Introducing pest control;
- Proper cleaning procedures and usage of proper cleaning chemicals;
- Official training of the workers;
- Proper waste management, including re- starting of the rendering station;
- All air curtains need to be checked and where necessary replaced;
- Systematic cleaning and refurbishing the sector for intestines and skin needs to be done.

Wednesday 28th March 2007

Visit to Leshak Kom, Leshak

This small meat processing plant was visited in order to evaluate the existing operation and also to give recommendations for a possible slaughter operation that the owner wants to open soon. Recommendations were given for improving the meat processing:

- Additional door to be set in order to solve the problem with entering the facility directly from the street;
- Review of the full process layout in order to solve the existing problem with cross contamination; this will require changing the positions of the thermal chamber for dry products and also repositioning the ovens;
- Wardrobe needs to be positioned and equipped properly with lockers;
- Toilets and canteen for the workers need to be set;
- Construct proper packaging sector with controlled room temperature;
- Purchasing cooling chamber for finished products;
- Refurbishment of the floor, walls and ceiling with suitable and easy to clean materials;
- New work clothes to be purchased;
- All other GMP regarding cleaning, pest control, supplier control, training, calibration, maintenance and other items from the check list need to be introduced;

He also received EU written regulation for building and operating slaughter plant. Suggestions on proper layout if building a new slaughter plant are given in Annex 2.

Visit to Apetit, in Vushtri

The owner has a small beef slaughter plant but due to a problem with privatization he has not yet received a license. He also operates with frozen and chilled meat storage at a different location where he has a plan to open meat processing on 850m2.

After on-site visit he received the following recommendation on the existing beef slaughtering plant:

- Surrounding needs to be cleaned and all roads fix up
- All glass needs to be protected from breakage or laminated
- Canteen to be relocated from the existing place to the room inside the slaughter plant that is used for office occasionally

- Washing station to be replaced with proper one, knee or foot operated
- Fix all doors and all openings to be closed
- Purchasing proper working clothes
- Sector for cleaning intestines needs to be put in order
- UV lamps to be put on above all doors that open directly to the outside area

All other issues from the check list need to be implemented, especially pest control, proper cleaning procedures, training, calibration etc.

Thursday 29th March 2007

Visit to Arqe & Iko, Prizren

Our second visit was organized in order to give thorough view of the production process since the owner is interested in HACCP implementation. Since I already visited this company this meeting was used more to discuss the existing GMP that are more developed than at any other company. The previously mentioned problem with cross contamination must be resolved according to the recommendations.

Additional recommendations were given on following:

- Boots barrier to be placed at the entrance
- UV lamps to be put at the door opening directly to the outside area and on the entrance
- Air curtain to be put at the raw material intake
- Ventilation system to be introduce in the trimming room in order to avoid mold or other material on the ceiling
- All hand washing stations to be supplied with paper towels
- Refurbish cooling chamber's walls and broken tails
- All lights to be protected from breakage or laminated
- Sponges to be forbidden for usage for cleaning purposes
- The tiles of the wall in the thermal chamber to be fixed
- Door behind the thermal chamber to be opened in order to allow manipulation or service of the chamber
- Screens to be place in all opening windows, especially for the men and women wardrobe and canteen
- Smoking to be forbidden in the room for ironing working clothes
- Flowers to be removed from the stairs in order to avoid attracting pests

Friday 30th March 2007

Meeting at KVFA with Mr. Flamur Kadriu on new administrative instruction for slaughtering and licensing

Monday 2nd April 2007

Visit to PQS in Vushtri

Met with one of the owner Mr. Ibraim. Opened 2 months ago, this company is set for beef slaughtering and meat processing. The installed capacity for slaughtering is 15-20 bulls per shift but the premises for slaughtering are under refurbishment and not finished yet. However several nonconformities were raised on the slaughtering process such as: no sink

in the bleeding area, no cooling chamber for suspicious meat, no depot, no cooling chamber for finished products and there was no separated room for intestines, gizzards and skin storage.

Meat processing is located in separate building from slaughtering and it will be based on German technology. Complete, new equipment is expected to arrive very soon when they also plan to finish with all refurbishment and segregation of processing in 4 areas. They plan to process maximum 15 products and in addition to the traditionally made sudzuk and dry beef meat they are planning to produce meat pates and goulash.

They also expected to have ISO 9001 Certification by TÜV, Germany and they showed interest in HACCP Implementation.

Recommendations for improving the existing lay out of the slaughter plant are:

- Animal depot to be constructed
- Chlorination process to be set on water supply from the well
- Fence surrounding the premise to be protected from pest entering by additional material at the bottom
- Canteen to be placed in the same building with the production process
- Construct cooling chamber for the finished products
- Door at the entrance of the slaughter plant to be protected from pest entering
- All glass to be protected from breakage or laminated
- Room or sectors for cleaning intestines and gizzard to be constructed
- No drainage system for blood at the bleeding step!

Recommendations for the meat processing plant are:

- Glass protection from breakage or lamination
- All washing station to be knee or foot operated
- All bags with spices and additives to be removed from the floor and put on pallet
- Wardrobes to be equipped with the lockers and paper towels
- Lid to be put on the waste container

All other GMP improvements were recommended according to the check list

Tuesday 3rd April 2007

Visit to Bucuku Company in Peja.

This beef slaughter plant has operated for almost ten years and has the largest capacity cooling chambers of 10 tons per day.

After evaluating the premises and production process, recommendations were given for improvement. Generally the company has good layout but recommendations were given starting from the surroundings where changes need to be made. All waste needs to be removed from the yard and the grass should be mowed. All solid waste containers should have closing lids. The fence has to be changed and made partly from concrete and partly from metal mesh.

All three opening for the waste disposal have to have mesh on them and to be kept closed.

Manure has to be removed from the yard and transported out of the premises. All windows need to be replaced in the building for skin salting and one window needs to be replaced in the animal depot.

Dispatch area has to be upgraded with special door to avoid contact with external air and all openings in the wall to be closed. I recommended that screens be put on each window that is opening to the outside (men's wardrobe). Proper washing stations should be put in the wardrobe and area for cleaning intestines. The paint for the slaughtering line is peeling as well as on the door of the cooling chamber and has to be repainted. The pipe for the cooling system has an opening that needs to be closed.

The room for cleaning intestines has a direct door to the outside, which needs to be considered and an additional door to be added in front. All openings in the ceilings need to be closed.

Paper towels were recommended to be placed at each hand washing station especially at the processing area. All glass must be protected from breakage. Suggestion was given to replace unsuitable doors with the proper smooth surface doors.

Similar to other companies, this company also does not have any pest control, proper cleaning chemicals and cleaning procedures and washing of the working clothes is not suitable.

It was also recommended to find space for the canteen.

Wednesday 4th April

Working at the office on preparing materials for the workshop on GMP implementation

Thursday 5th April

Workshop on GMP implementation in the meat industry was held in KCBS office. 14 people out of 18 invited attended the workshop including representatives from Ministry of Agriculture and veterinary authorities. After the presentation several questions were asked mainly on EU regulations, Macedonian experience in implementation of quality standards, comparison between industries etc. The PowerPoint presentation is included as Annex III.

TASK FINDINGS AND RECOMMENDATIONS

Task 1: Conduct on-site orientation visits to several of the processors participating in the KCBS project's GMP program. These visits will allow the consultant to see the condition of the meat industry and to provide recommendations regarding GMP implementations.

Ten clients were visited and evaluated the existing working conditions. They all received recommendations on improving the production process and check list of GMP.

Task 2: Work with each selected company to develop a basic framework for their GMP plan.

Findings/Recommendations - During on-site visits all clients received recommendations for improving the existing processes and lay out.

Task 3: Conduct an intensive one day workshop focused exclusively on GMP for key employees of meat processors and Kosovo civil servants actively engaged in monitoring food safety standards.

Findings/Recommendations - Workshop presentation is given in Annex III; 14 people attended the workshop

Task 4: Prepare highly detailed GMP implementation plans for one selected meat processor including beginning implementation.

Findings/Recommendations- Arqe & Iko and PQS received detail recommendation on GMP and HACCP implementation since they are the two companies that showed the biggest interest for HACCP implementation. These recommendation include premises, surrounding, process and equipment lay out and detailed GMP check list

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ACTIVITY

Kosovo meat and slaughter industry is very young. Among other official laws and regulation that need to be set, the industry needs to receive on-going support in order to satisfy highly demanding international standards. Training has to be part of this support in order to introduce all GMP requirements and ways to satisfy each demand. First of all production premises have to be in harmony with EU requirements if any export is to be considered. All policies, procedures and records have to show detail control system and corrective measures. All food handlers have to be officially trained.

I strongly feel that all future activities should be focused on working closely with several chosen processors that show a high degree of management commitment and have enough resources for implementing the necessary standards.

ANNEXES

Annex I GMP Check list

Annex II Proposed layout for Leshak Kom beef slaughter plant

Annex III Workshop presentation

ANNEX I: GMP Check list

Quality Management System	
Documents and evidence required:	**Findings**
All critical procedures / processes must be covered by work instructions and records. The same applies to procedures which affect the quality and legality of products.	
Work instructions need to be available to the staff.	
General documentation requirements	
Documents and evidence required:	**Findings**
There needs to be policies, procedures and work instructions to cover all pre-requisites	
Procedures	
Documents and evidence required:	**Findings**
Are procedures available for all processes critical to product safety, legality and quality.	
|re these procedures readily available and is there evidence staff have been trained in these procedures.	
Record keeping	
Documents and evidence required:	**Findings**
All records must be correctly completed and stored to enable retrieval in a timely manner.	
Records need to be stored for a specific timescale which needs to be documented e.g. 3 or 5 years.	
Any changes to documents or records need to be initialed and reason given for change by an authorized person.	
Document control	
Documents and evidence required:	**Findings**
A list of all documents and manuals which make up the quality system need to be maintained.	
All documents and records must be in a controlled format.	
An amendments procedure must be in place which will track all changes made to documents and the reason why.	
A procedure needs to be in place to control the issue and re-issue of policies, procedures, records and work instructions and the disposal/archive of old policies, procedures, records and work instructions.	
Records must be retained (based on shelf life + possible period for home storage e.g. freezing.	
Supplier Quality Assurance	
Documents and evidence required:	**Findings**
A list of approved suppliers must be available, this is to be reviewed at least annually.	
A procedure should be in place stating how suppliers become approved, e.g. audit, assessments, supplier screens, analysis of product etc.	
Suppliers and raw materials should be risk assessed and this will determine the level of assessment of the incoming goods and monitoring of the supplier.	
A system of evaluation of new / potential suppliers and raw materials before they become officially approved suppliers needs to be documented and records maintained.	

Wherever possible certificates of analysis should be provided by suppliers.	
Raw materials may have to be testing before being released to production, these procedures need to be formally documented and the relevant staff trained in the procedure.	
Specifications	
Documents and evidence required:	**Findings**
Specifications must be held for all raw materials, this need to be signed by the authorized person.	
Specification for food contact packaging must include food-grade confirmation; these specifications need to be signed by the authorised person.	
If intermediate products are produced, specifications for the control of these are required.	
Finished product specification need to be produced and where appropriate agreed with the customer & signed by both parties. If not a letter or receipt and a statement to say if the customer has not replied within a specific amount of time the specification will be taken as agreed.	
Corrective action	
Documents and evidence required:	**Findings**
Corrective action requirements can be generated from many activities e.g. internal audits, reviews, non-conformances, complaints, 3rd party audits, pest control recommendations etc. responsibility and timescale for completion of the corrective action must be stated and agreed by authorized staff.	
Corrective actions must be completed within a timely manner and these must be documented and signed off by the authorised staff on verification that the corrective action was completed satisfactory.	
Traceability	
Documents and evidence required:	**Findings**
The company must be able to demonstrate that they can trace a batch of raw material forward to all batches of finished product which contains that raw material and on to the customer.	
The company must be able to demonstrate that it can trace a finished product back to all batches raw materials including packaging materials and rework contained within that product.	
The above traceability checks must be carried out and recorded annually as a minimum.	
At the same time as the traceability check, the product recall procedure can be tested to identify the location of a batch of the finished product in the market place.	
Management of incidents and product recall	
Documents and evidence required:	**Findings**
An incident reporting system needs to be in operation and quarterly reviews of incident to be documented.	
The Incident Procedure needs to include examples of types of incidents, it also needs to include a statement regarding the reporting to customers if product has been found to be illegal or unsafe and has been dispatched.	
A product recall system must be in place; this must include clear responsibilities for the members of the crisis management team who will co-ordinate a product recall.	
Contact numbers (work, mobile and home) of the crisis management team must be available at all times.	

The recall procedure must be tested at least annually, this is to be fully documented and must identify if the test recall was satisfactory and must include a reconciliation of the quantity of the batch of product produced and the quantity of product which could be recalled. The time taken to carry out the recall must be assessed to establish if it was satisfactory. Corrective actions to improve the system also need to be documented.	
Is there evidence to show a recall/withdrawal can be carried out at any time and is not dependent on certain staff always being available.	
Complaint handling	
Documents and evidence required:	**Findings**
Customer complaints must be recorded together with the necessary investigation and corrective action.	
Complaints must be reviewed at a specific frequency e.g. monthly / quarterly.	
Trend analysis needs to be carried out on complaints and the necessary corrective action documented.	
Complaint analysis should always be related to the volume of product produce to give a more accurate picture of the trends.	
Location	
Documents and evidence required:	**Findings**
There shall be no local activities which will have an impact on the premises e.g. emissions from a neighbouring factory.	
There should be defined boundaries around the site.	
External draining must be adequate, the external surfaces must be in good condition and external vegetation must be well maintained.	
No products (raw materials, intermediate product, finished product or packaging) should be stored outside	
There must be no obstructions along external walls.	
There must be appropriate security measures in place on site to prevent unauthorised entry.	
Layout / Product flow	
Documents and evidence required:	**Findings**
Process flow through the premises must be in a good logical order to avoid any cross contamination.	
Good segregation between high and low risk to be demonstrated to avoid any cross contamination.	
Consider potential cross contamination from product, utensils, staff, air flow, services waste removal/storage. Laboratory, cleaning equipment/rooms and implement systems to reduce or eliminate risk.	
Identify transfer points e.g. cross over of high/low risk and implement controls.	
Raw materials, packaging and finished products must be clearly segregated by some acceptable means, physical or otherwise.	
Allergens and identity preserved products must be effectively segregated.	
Extra precautions regarding segregation, hygiene practice shall be in place for high care / high risk food manufacture.	
Fabrication	
Documents and evidence required:	**Findings**
The fabric of the premises must be in condition.	
Fabrication audits to take place at an appropriate frequency depending on the condition/age of the premises.	
Wall floor junctions to be coved.	

Floors must be maintained in good condition with a good flow to drain, drainage must flow from high risk to low risk areas (drains from in-house laboratories must flow away from high risk areas).	
Ceilings must be maintained to a good standard and included on cleaning schedules. Pest control cover must be in place where false ceilings are installed.	
Windows which open to the outside must be screened.	
Glass windows must be removed if not necessary or laminated.	
Doors and dock levelers leading to external areas must be proofed.	
Lights must be covered by diffusers or shatterproof, including fly killer units.	
Air conditioning units must be on the planned maintenance system. Extraction systems where dust may be created should be installed.	
Air filtration units need to be on the planned maintenance schedule.	
Positive air pressure systems need to be in place with the necessary controls where applicable.	
Services	
Documents and evidence required:	**Findings**
Water must be mains water or from a treated and treated supply.	
Water quality testing (to EU Standard) must be carried out at least annually by an accredited laboratory. Take samples from point of use e.g. mix water. Cleaning water (is there a tap plan available).	
If water, air, compressed air or gas is in contact with product these need to be monitored for safety and/or quality.	
Equipment	
Documents and evidence required:	**Findings**
Equipment must be suitable for the purpose maintained to a good standard hygiene and fabrication, be accessible for cleaning and maintenance.	
Permanently sited equipment to be sealed to the floor.	
Assess the condition of equipment during the monthly hygiene audits.	
Maintenance	
Documents and evidence required:	**Findings**
A planned maintenance system based on risk assessment must be documented covering all equipment which affects the safety, legality and quality of products.	
Records must be maintained to demonstrate work carried out against the planned maintenance programme. This is to include work carried out by contractors.	
Check for temporary repairs to equipment.	
A procedure must be available which states light fittings / glass will be only be changed outside production hours.	
A formal documented handover to production must be carried out after breakdowns on-line. This is to include a check for removal of engineering equipment / parts and where appropriate cleaning and disinfection of the line / equipment prior to re-starting.	
Any outside contractors must sign the company hygiene regulations before entry and must follow these regulations.	
Specifications must be available for food grade lubricants.	
Food grade and non-food grade lubricants must be stored separately.	
Work instructions for the use and application of non-food grade lubricants must be available.	

Staff facilities	
Documents and evidence required:	**Findings**
Changing rooms must be provided and work wear must be segregated i.e. separate lockers for personal wear and work wear.	
For workers in high risk/care areas separate changing facilities are required.	
If work wear is worn for more than one day it must not be stored with clean work wear.	
Ideally, work wear shall be removed prior to entering the canteen, smoke room and toilets.	
The correct procedure for putting on work wears needs to be included in a work instruction.	
Staff should not go outside the premises in work wear.	
Hand wash stations must be sited at the entrance(s) to production, the taps must be automatic or foot / knee operated. Hand wash station also needs to be provided at other areas of processing/production as necessary.	
Toilets must not open directly into production, packing and storage areas and they must be suitably ventilated.	
Ideally you should operate a no-smoking site. If this is not possible a specific area must be defined for smokers, this area must be ventilated and provision made for waste.	
Catering facilities must be in a dedicated area, the staff trained in food hygiene and controls in place to prevent contamination of product. Cooking / storage temperatures to be recorded.	
Refrigerator(s) must be provided for the storage of food brought onto the premises. These refrigerators must also be temperature monitored.	
Physical and chemical product contamination risks	
Documents and evidence required:	**Findings**
All potential physical and chemical contamination hazards need to be identified and controlled.	
Cleaning chemicals must be stored in a dedicated and ideally locked cupboard / area.	
If chemicals are manually measured there should be dedicated and identified measuring cylinders/jugs for this purpose. Instructions for chemical dilution also need to be available.	
Fabrication audits need to be carried out, these can be specific audits or included in the monthly hygiene audits.	
Glass breakage procedure to be documented (incident record) and all staff trained in this procedure.	
Wood should ideally be eliminated from areas where raw materials are handled, mixing/preparation, production and packing areas. If wood pallets must be used they must be located in permitted areas only which need to be detailed on a site plan and ideally the floor marked in this area.	
A glass inventory needs to be documented and audited. The frequency of the audit will depend on the risk to the raw material, intermediate or finished product. e.g. where product could be contaminated by a breakage this needs to be audited daily, where there is less risk to product this could be audited on a monthly basis.	
Filter or sieve sizes need to be specified and appropriate.	
Procedures for the checking of filters / sieves need to be documented and the relevant staff trained in these procedures, these also need to state the corrective action taken.	

Filter or sieve checks must be carried out at an appropriate frequency and recorded.	
Any finds in filters or sieves must be investigated to find the source of contamination. This investigation must be documented.	
Is any volatile flavors / incompatible ingredients on site these must be stored to reduce risk of contamination to other products.	
Where appropriate metal detectors or other foreign body detectors need to be used, this will be identified by the HACCP system.	
The sensitivity of metal detectors needs to be in line with best practice for the products being produced.	
Metal detectors ideally should be an automatic rejection into a locked box, but can also be a line stop system which is alarmed.	
Metal detector reject boxes must only be opened by authorised staff.	
Procedures for the set-up and routine testing must be documented and the relevant staff trained in these procedures, these also need to state the corrective action taken if products are rejected or if the test pieces fail e.g. hold / quarantine product back to last successful check and re-test product before release.	
All metal finds must be investigated to find the source of contamination. This investigation must be documented.	
Every batch of metal detectable plasters must be checked on the metal detector and recorded.	
Once the last product has passed through the metal detector, the detector needs to be checked with the test pieces and recorded as the 'end of production test'.	
Housekeeping and hygiene	
Documents and evidence required:	**Findings**
An excellent level of hygiene and housekeeping must be maintained.	
Documented cleaning schedules / instructions covering all equipment, walls, floors, ceilings, air filters, skip areas, external areas and vehicles etc…must be documented.	
Relevant staff must be trained in cleaning methods and formal training records are to be available.	
Specifications and safety data sheets must be available for the cleaning chemicals used.	
Cleaning chemicals must be store in the original or clearly identified containers.	
Swabs must be taken to verify cleaning and these swabs must be taken according to a documented schedule.	
Hygiene / housekeeping audits needs to be carried out at least monthly, these must cover all areas of the premises including external areas and vehicles. Recommendations must be assigned to a responsible person and timescales agreed for completion. Recommendations must be validated and signed off on completion.	
Waste / waste disposal	
Documents and evidence required:	**Findings**
Waste must be controlled so that it does not present a cross contamination risk.	
Bins and external skips should be lidded.	
Skip areas must be included on hygiene audits and covered by cleaning instructions.	
The waste carriers must be licensed and a copy of the current license must be held on site.	

There should be a procedure / instruction for the disposal of products which fall on the floor.	
Pest control	
Documents and evidence required:	**Findings**
Pest control must be provided by trained personnel or contracted to a reputable company. Training records of the visiting technicians must be held on file.	
A contract must be in place if using an external service and this must clearly detail the scope of the cover provided and frequency of inspections (typically 8 routine and 4 technical per year).	
External and internal rodent baits must be available, insect monitors, fly killers, pheromone traps (where applicable).	
Specifications and safety data sheets must be available for all baits and chemicals used on-site.	
All baits must be documented on a bait plan which is to be dated or document controlled.	
Records of inspections must be documented and this must include recommendations as necessary. Any bait takes documented on the report must make reference to the specific bait number.	
Recommendations must be actioned and signed off within an appropriate timescale.	
Drains must have screens fitted, windows opening to outside must be screened, strip curtains / air curtains to be fitted to external doors. The premises must be proofed.	
Raw materials, intermediate products and finished products must be store off the floor and appropriately sealed / covered to prevent pest contamination.	
Documented Incoming Goods checks must include a check for signs of pest.	
If raw materials are used which are vulnerable to infestation e.g. flour, special procedures must be in place to ensure the relevant handling equipment is inspected regularly according to a documented schedule.	
Catch tray analysis of fly killer units and pheromone traps must be carried out and documented (typically quarterly).	
Baits should be numbered as per the bait plan.	
There should be evidence of annual fly killer tube changes.	
Transport	
Documents and evidence required:	**Findings**
Transport vehicles must maintain the appropriate temperature of the products during storage & delivery e.g. chilled / frozen.	
Temperatures must be recorded and temperature of 3rd party vehicles must be available on requested.	
Vehicle breakdown procedures must be maintained and drivers trained in the procedures, 3rd party contractors must have or agree to follow the company's breakdown procedure.	
Vehicles must be covered by cleaning instructions and records (3rd party hauliers must provide evidence of their controls).	
Vehicles must be checked for cleanliness before loading and during the monthly hygiene audits.	
Vehicles must be loaded under covered bays or via sealed units.	
Include vehicles in the planned maintenance system (3rd party hauliers must provide evidence of their controls).	
Evidence that vehicles are secure during transport.	
Evidence that there is no risk to taint or contamination on vehicle.	

Product design/development	
Documents and evidence required:	**Findings**
A documented new product development / product modification system to be in place.	
This is to include a documented hazard analysis study of any new product/process/ingredient.	
Trials and assessments of new product to be documented.	
New product development system is to include checks for safety, quality and legality and to be signed off by an authorised person and will result in a new finished product specification.	
Product packaging	
Documents and evidence required:	**Findings**
Specifications must be available for packaging and these must include a statement to state the packaging is food grade.	
There must be no risk of contamination from packaging e.g. staples.	
There must be return to stores procedure for part used packaging. The relevant staff must be trained in this procedure.	
Packaging must be segregated in the storage area and de-boxed prior to entry into the production area.	
Coloured (blue) rather than clear liners must be used by suppliers of raw material, and for packing of intermediate product.	
Product analysis	
Documents and evidence required:	**Findings**
Schedules need to be in place for all testing (microbiological, as well as any necessary chemical analysis) of raw materials, processes & products, this is also to include microbiological swabs to verify plant & environment cleaning and hand cleaning.	
Any product testing which constitutes release of product needs to be documented on a sampling schedule.	
Job description need to include responsibility for the release of product and who is responsible in the absence of these staff.	
Control of non-conforming product	
Documents and evidence required:	**Findings**
There must be a system and documented procedure in place to identify non-conforming product e.g. hold / reject labels, quarantine areas.	
Procedure / work instructions need to be in place which detail how non-conforming products are dealt with, corrective action procedures and responsibility e.g. Incident Reporting procedures. Formal training in these procedures must be carried out.	
A record must be maintained of all non-conformances and the corrective action taken.	
Process control	
Documents and evidence required:	**Findings**
Incompatible products must be segregated e.g. nuts, seeds, packaging, raw and finished product.	
If rework is used it must be controlled by the use of a rework addition matrix. Which details what rework can be used and where and the addition quantities per batch.	
Procedures for the control, identification and storage of rework prior to use needs to be documented and the relevant staff trained in the procedure.	
Where Time / temperature processed are critical, alarmed, continuous chart recorders are required e.g. cold stores, pasteurizers.	

Documentation must be available to demonstrate formulation/ Process/ equipment modifications are validated to ensure product safety, legality and quality.	
Quantity control	
Documents and evidence required:	**Findings**
Appropriate quantity checks to need to be carried out and documented to ensure the products produced conform with legal and labelling requirements and/or customer requirements.	
Procedures must be in place for the quantity check method and the relevant staff trained in the procedures.	
Have weight / volume check procedures been approved by the Local Authority.	
Are the weight / volume checks in accordance with agreed specifications.	
Calibration	
Documents and evidence required:	**Findings**
A calibration schedule must be in place covering all equipment critical to product safety & legality and for equipment monitoring CCPs. The schedule should detail frequency of calibration, who calibrates instruments, when last done and when next due. The accuracy of calibrated equipment also needs to be specified.	
Calibration must be traceable back to National Standards and this must be stated on the certificates together with details of the reference equipment used.	
Verification against a calibrated instrument can also be carried out and this needs to be done according to a schedule detailing the instrument used for verification and frequency of verification. The tolerance of verification must also be stated.	
Certificates / records of calibration and verification need to be maintained.	
All calibrated equipment needs to be identified and labeled with calibration date and when calibration is next due.	
Only authorized staff shall adjust calibrated equipment, and the equipment must be protected from damaged and misuse.	
Scales should be checked and recorded daily at start-up to verify working satisfactorily.	
Training	
Documents and evidence required:	**Findings**
All staff including temporary and agency staff must undergo formal induction training prior to starting work.	
All food handlers must be trained to Foundation Level food hygiene.	
Training records must be available for work instruction / procedure training and these must be signed by the trainer and trainee.	
CCP monitors and the staff responsible for corrective actions must be formally trained in these procedures.	
A training matrix should be documented to highlight all staff, the training received and training still required.	
Review training at least annually. This is to include effectiveness of training.	
Personal hygiene	
Documents and evidence required:	**Findings**
Personal hygiene regulations must be issued to staff and a record of this maintained.	
Personal hygiene regulations must cover, short fingernails, no false nails, no jewellery or watches, blue metal detectable plasters (blue finger stall if necessary) only to be worn, personal medicine control, smoking &	

drinking only in permitted areas, hand washing on entry to production units and ongoing at an appropriate frequency, no excessive perfume or aftershave.	
Visitors and contractors must be made aware of the above personal hygiene regulations and follow these regulations.	
Metal detectable plaster to be checked (every new batch).	
Hand swabs shall be taken at regular intervals.	
Medical screening	
Documents and evidence required:	**Findings**
Depending on the nature of the business, staff must be either screened by questionnaire regarding infectious disease they may be suffering or in contact with, or, be subject to a medical by occupational health nurse who will provide medical certificates.	
Visitors and contractors must be screened by questionnaire on arrival regarding infectious disease they may be suffering or in contact with. Ensure regular visitors e.g. pest control technicians complete these on every visit.	
Medical screens must be checked before staff, visitors or contractors start work.	
Exclusion procedure for staff / visitors known to be suffering from an infectious disease.	
Protective clothing	
Documents and evidence required:	**Findings**
Adequate and appropriate protective clothing must be provided for staff, visitors and contractors e.g. coats, hats, hair nets, footwear, beard snoods.	
Work wear must be segregated from personal ware e.g. separate lockers.	
If work wear is worn for more than one day this must not be returned to the clean work wear locker.	
External laundry is preferred, obtain evidence this is food grade, and audit the site if necessary.	
If laundry is in-house, this must be segregated from production / food storage areas and procedures in place to cover segregation of clean and dirty work wear, cleaning cycles, safe storage of chemicals and swabs should be taken to validate effective cleaning.	
If gloves are worn, staff must be trained in the glove policy.	
Work wear must not be worn outside.	
Where there are high risk/care operations separate identifiable work wear must be provided and footwear disinfected on entry.	
For high risk/care facilities (or where risk of contamination) work wear must be removed prior to toilet and canteen.	
Take swabs of footwear to validate adequate cleaning and disinfection.	
If there are microbiological laboratories on-site, lab coats worn in this area must not be worn in food storage, production or packing areas.	
Single use hairnets required.	

ANNEX II: Proposed layout for Leshak Kom beef slaughter plant

ANNEX III: Workshop presentation

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Implementation of GMP in the meat industry Kosovo March/April 2007

Katerina Kostadinova
Food Standard Specialist

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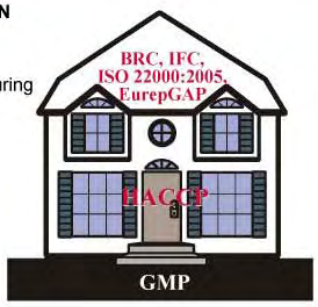
INTRODUCTION

- G- Good
- M- Manufacturing
- P- Practices



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HACCP

- H-Hazard
- A-Analysis
- C-Critical
- C-Control
- P-Point
- Developed by Pillsbury, NASA and US Army Laboratories
- First publication in 1971
- Accepted in 160 countries

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Why HACCP

- Management of product safety and prevention of product safety incidents
- Limitation of traditional quality control
- External pressures(Government, customers, media and enforcement authorities)
- Legal requirement (EU Directive 852/2005 and 853/2004)

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Why HACCP

Benefits

- Prevention
- Confidence
- Effective use of resources
- Systematic approach
- Internationally accepted
- Demonstrates management commitment

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Why HACCP

50 years ago
- Preparing the food at home
- Fresh/ seasonal food
- ?

Today
?
Frozen, preserved
Eating in restaurants

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Why HACCP

Care for protection of human health
Consumers are informed
Known affairs for food poising(dioxin…)
New diseases (BSE, Avian influenza…)

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Why HACCP

Prevention from:

- **Microbiological**(bacteria, viruses, parasites, protozoa, algae, fungi-mycotoxins)
- **Chemical** (cleaning chemicals, lubricants, mycotoxins, heavy metals, allergens, antibiotics, hormone residues, pest control chemicals, ink…
- **Physical** (glass, wood, plastic, hair, dust, metal, wire, paper, needle, soil, jewelry, chewing gum, plasters, gloves, clothing…
- All hazard than can occur in the food and may cause a food to be unsafe for consumption
- Relates to SAFETY, not QUALITY

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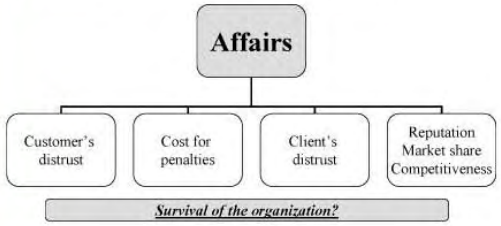
Why HACCP

- Laws are national but the risk does not have borders



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GMP

- Pre-requisites for quality management systems
- Set of requirements that need to be fulfilled
- It covers building, surrounding, workers, production process

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GMP

Buildings, surroundings, roads, drainage system

- Proper storage of the equipment, waste disposal, grass mowing
- Regular maintaining of the roads and yard
- Proper drainage in the areas of intake and dispatch
- Proper management with liquid and solid waste to unable source for food contamination

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GMP

Construction of the walls, floors, ceiling, doors, windows

- Floors, walls and ceilings to be made of preserving, smooth, easy to clean material that are suitable for the production conditions
- Walls should be paint in bright colors and with proper junctions
- Floors should have incline for proper drainage, not to be slippery and curved junction with the walls
- Windows that are opening should have nets and junction with the wall on the bottom should have angle of 25°.
- Doors to be closed properly, with smooth surface and made of not absorbing material, External doors should protect the facility from pests
- Ceiling to be made to prevent food contamination and packaging and not to prevent cleaning

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GMP

Lightening

- Proper lightening is required and not to effect to the color of the product but no less then
- 600 lux inspections area
- 400 lux working areas
- 250 lux other area
- All lightening to be protected from breakage

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GMP

Ventilation

- Proper ventilation to be installed that would prevent from increasing of the temperature, condensation, accumulation of the steam and dust and disposal of the contaminated air from the premises
- In areas where presence of the microorganisms is critical positive pressure is to be maintained. Openings for intake of air to be properly positioned to unable intake of contaminated air.

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GMP

Drainage system

- Drainage system to be equipped with proper openings and sieves to withhold solid waste.
- Waste water from the process and canalization from the personnel not to be mixed.
- Impermeable containers to be provided for waste storage before they are removed from the factory

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GMP

Layout of raw material, workers and products

- Determining the layout of the workers and equipment to unable additional cross contamination of the product
- Layout of the premises should ensure physical and operational segregation of the incompatible technologic operation
- The premises must be build in accordance with maximum capacity
- Non production part of the premises should be separate fro the areas where product and packaging are stored and handled and there should be additional pre area as protection from external influences

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GMP

Wardrobes, canteen and toilets

- **Wardrobes** to be keep clean and with good ventilation. Upper surface of the lockers to be with angle of 25°. If possible working clothes to be segregated from personal clothes. No food and smoking is allowed in the wardrobes
- **Toilets** should be maintained clean. Doors should be with mechanism for automatic closing. Hand wash stations must be sited at the entrance's) to production, the taps must be automatic or foot / knee operated. All washing station to be supplied with soap and paper towels and disinfection of the hands
- Wardrobes and toilets should not be opened directly to the production area
- **Hand washing stations** should be positioned on proper places where it is required. They should me made from non corrosive material, supplied with soap, disinfecting, paper towel, cold and warm water and automatic or foot/knee operated
- ***Room for cleaning and disinfection of the equipment***

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GMP

Quality of the water, steam and ice(if used)

- Proper source with enough quantity of **water** must be supplied
- The water used in contact with food or contacting surfaces must satisfy the regulation for drinking water
- Water should be tested on microbiological, chemical and physical quality on the points on enter and inside of the premises, including usage of ice and water steam. Schedule for testing should be determined and all results should be recorded and maintained
- Water supply
- Enough quantity of cold and warm water must be supplied with necessary pressure, proper temperature for all technical operation and for cleaning. It is not allowed drinking water and technical water to be connected.
- If **ice** is used there should be microbiological analysis that are recorded and maintained
- **Water steam** that is in direct contact with food or contacting surfaces should origin from drinking water without harmful substances

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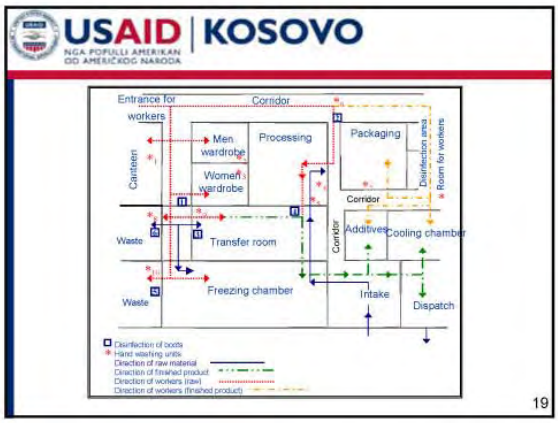

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GMP

- Intake and storage of the incoming materials
- Intake and storage of chemicals
- Finished product storage

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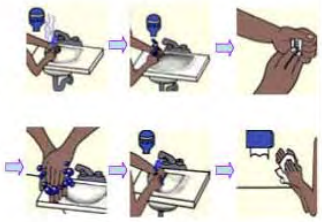
GMP

Workers

- Training
- Medical screening
- Personal hygiene
- Washing hands
- Visitor regulations



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GMP

- Suppliers (full system from approval, assessment, specs, monitoring)
- Training (induction training for food handlers, permanent trainings)
- Incident Management (policy, control, reviews)
- Complaints
- New product development
- Management (monthly meetings, annual meeting, setting goals)

22

GMP

Cleaning

- Approved suppler
- Specification and analysis
- Instruction
- Safety data sheets
- Training
- Proper storage of the cleaning chemicals

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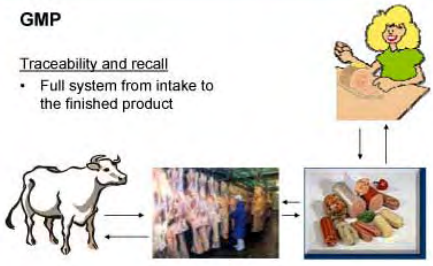
GMP

Traceability and recall

- Full system from intake to the finished product



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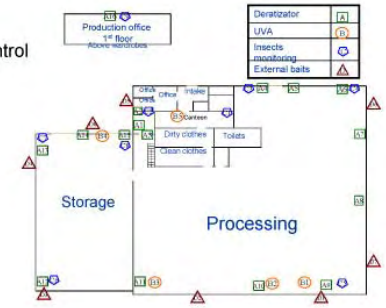
GMP

- Pest control



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GMP

Maintenance of the equipment

- Equipment should be made of non corrosive material. Contacting surfaces should be non toxic, smooth, non absorbent, resistant to constant cleaning and disinfection and not to react with food
- All lubricants, cleaning chemicals and disinfectants should be food grade and to be used in accordance with product specification
- Equipment should be install to unable any contamination to the food but to be positioned to enables easy approach for cleaning, maintaining and inspection
- If equipment produces fumes exit must be supplied in order to avoid gas leakage and odors in the food

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GMP

Maintenance of the equipment 2

- The equipment should be kept in clean and disinfecting condition in accordance with cleaning program
- Equipment used for manipulation with non food materials should not be used in manipulation with food materials
- Written procedures should be made for proper maintaining of the equipment
- Special program with all details on regular services, time frame, responsible person, monitoring procedures, record keeping and verification

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GMP

Calibration

- All measuring equiment that have effect of product safety shpuld be numbered and its usage describied
- There has to be protocol for calibration for thermometers, ph meters, scales, higrometers thermo data loggers etc.
- Also the company should have responsible persons, monitoring proceduresm verification, corrective measures and record keeping.

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GMP

- Product analysis
- Product specifications
- Recipe
- Shelf life determination
- Proper information on the label

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GMP

- Control of foreign bodies by:
- Glass, plastic, ceramics
- Metal (metal detector, sensitivity)
- Wood

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- Waste management (removing regularly, proper container, agreement with authorized company)

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- Proper storage and distribution
- Stock rotation- FIFO
- Special area for suspicion or product with some nonconformities

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GMP

- Transport
- Stock rotation
- Temperature control of the transportation vehicles
- Segregation of raw meat and finished meat products


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- There should be procedures, policies and written instruction for workers to follow
- There should be procedures for monitoring of every step that is consider critical
- Corrective measures should be in place if something goes wrong
- Retrain

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Do not forget:

This is a team work!


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THANK YOU FOR YOUR ATTENTION !

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