



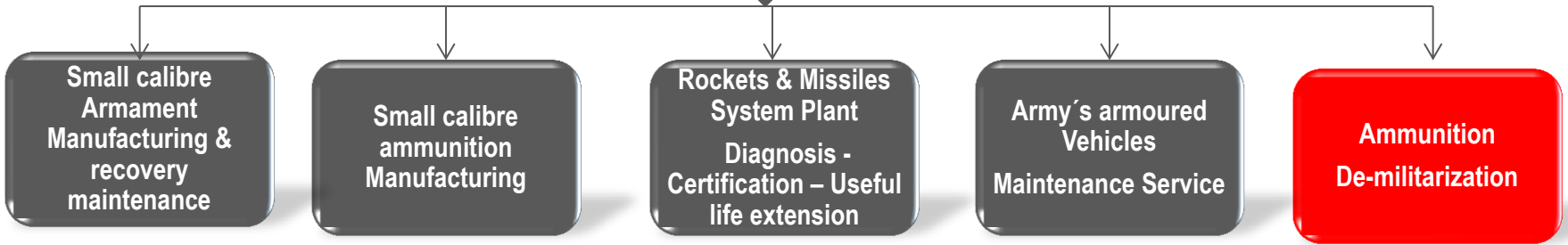
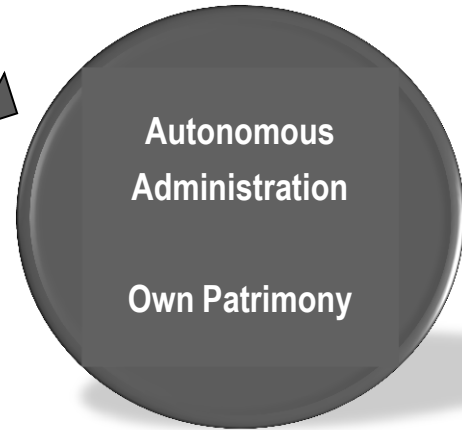
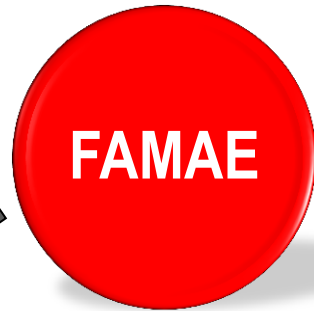
CHILEAN ARMY'S FACTORIES AND ARMOURIES

DEMILITARIZATION OF CLUSTER AMMUNITION



CAPTAIN MANUEL ESPINOZA A.
September 2013
Lusaka, Zambia

Since 1811, adding value to Armed Forces



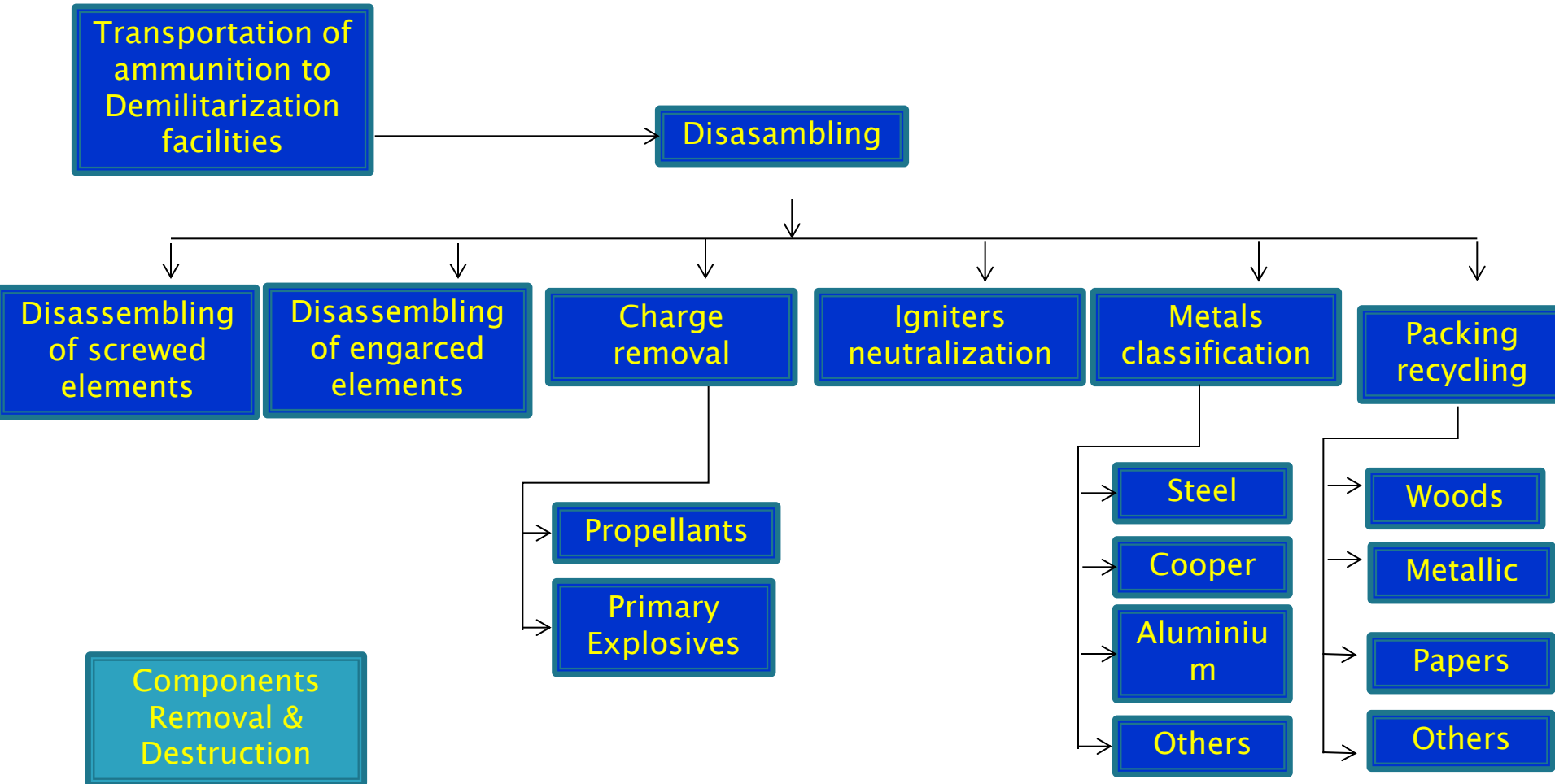
Legal Structure And Operative Capabilities



ISO 9001 - 2008



DE-MILITARIZATION PROCESS





FAMAE's Technical capabilities

- **FAMAE has performed demilitarization of different calibres ammunition since 1979, reaching up to more than 2,500 tons of de-militarized ammunition.**
- **To achieve such capability, the corresponding processes and machinery was developed, in accordance with each type of ammunition.**
- **Among the demilitarization, FAMAE's experiences includes the support to Ecuador in 2009 for the equipment and implementation of its ammunition demilitarization center.**



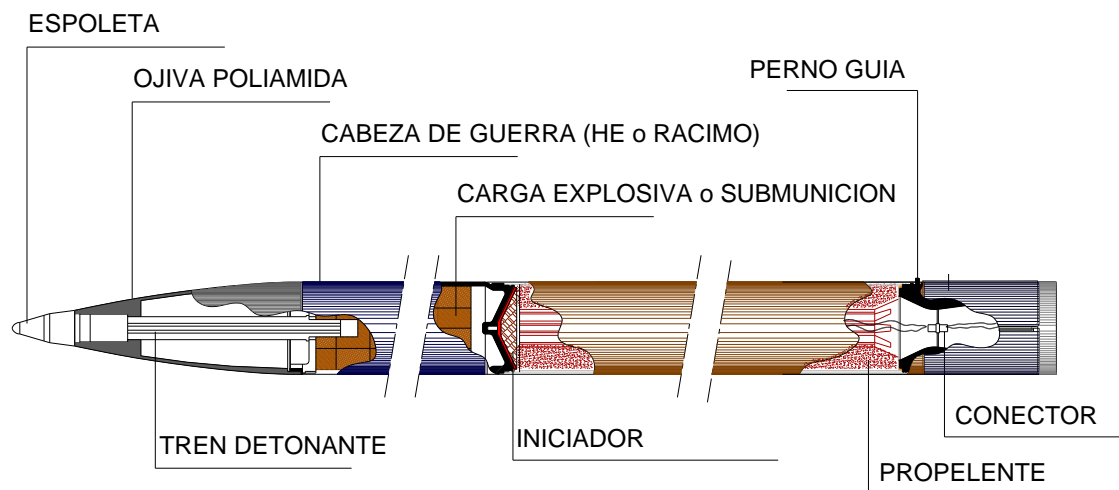


- According to specification and range of dangerousness, each requires an specific demilitarization process. This process must be performed with safe and secure procedure in order to protect the civilian and military personnel.
- FAMAE has developed clean processes minimizing environmental impact. However, in order to preserve security, some components must be destroyed through monitored detonations in controlled áreas, qualified for this purpose. After the necessary detonations the affected area is supervised and inspected to verify the no existence of unexploded ordnances “UXOs”.



Demilitarization of Rockets

Analysis of the ammunition configuration to establish the proper procedure



FUZE - OGIVE – WARHEAD POLIAMIDE – EXPLOSIVE CHARGE
EXPLOSIVE TRAIN – IGNITER – PROPELENT - CONNECTOR



Design and manufacture of a workstation to disassemble a rocket

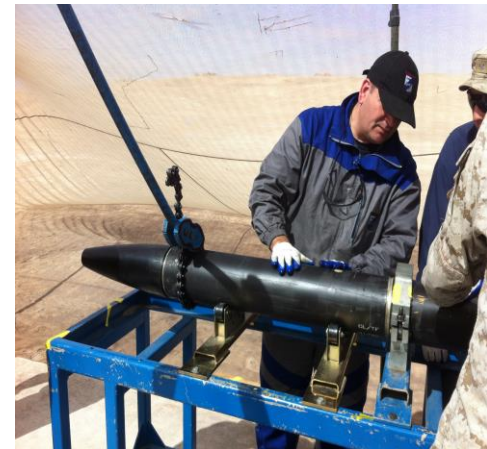




Design and manufacture a workstation to burn the motor's propellant



Disassemble the warhead of a cluster ammunition



Extraction of bombs from the warhead of a cluster ammunition

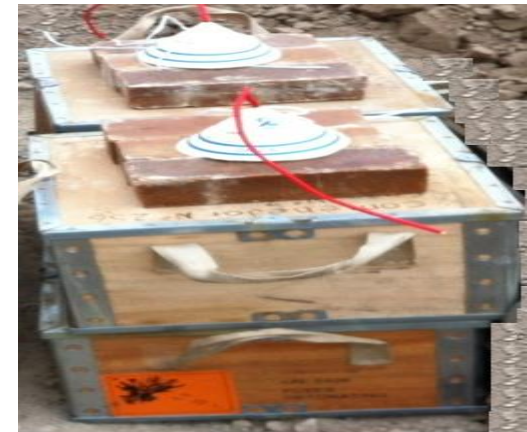




Organizing the bombs to a controlled destruction



Bomb's destruction





Verification of the detonation place to verify the no existence of UXOs

The metallic elements from the destruction are sent to a foundry.





Demilitarized Cluster Ammunition

Cluster Ammunition Kind	Quantity	Number of Batches	Explosive submunition type	Total Quantity of explosive submunitions	Number of Batches	Additional Information
LAR Systems Rockets (160mm)	13	3-194	1-92	104 in each ogive	No available	160mm war cluster head Rockets. Production year: 1992. Total existence was demilitarized (249 units).
	13	3-195				
	13	3-219				
	13	3-221				
	13	3-224				
	13	3-226				
	13	3-229				
	13	3-230				
	13	3-233				
	13	3-234				
	9	3-235				
	13	3-238				
	10	3-239				
	13	3-241				
	13	3-245				
	13	3-253				
	13	3-255				
	11	3-256				
13	3-258					
11	3-260					
Total	249		Total	25.896		



End of Presentation
Thank you very much

More information:
www.famae.cl