Annex 6-A

Project 6

Processing of metal surfaces to lower friction and wear

Time frame

	2014		2015				2016				2017			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1. To characterize the metal surface and determine the best test methods	X	X	X	X	X	X								
1.1. Develop a method for the preparation of the metal surface of the samples - cutting, rough polishing, fine polishing	X	X		X	X									
1.2. Develop a method for full sample surface analysis (optical microscopy, atomic force microscopy, scanning electron microscopy, profilometry)			X	X	X	X								
2. To develop a test apparatus to simulates an ice track and a climate simulator to test metal surface friction and wear reduction	X	X	X	X	X	X								
2.1. Develop testing apparatus (simulation of bobsled track) and software to detect movement of the sample at a certain angle	X	X												
2.2. Develop a climate simulator which can be adjusted to work at low temperatures		X	X	X	X									
2.3. Develop a method for measuring slip under laboratory conditions	X	X	X	X	X	1								
3. To modify the metal surface, and calculate the new slip determined by any modifications made					X	X	X	X	X		X	X		
3.1. Develop a method for metal surface modification to increase slip (surface roughness, hardness, chemical modification)					X	X	X	X	X		X			
3.2. Optimise metal surface for increased gliding on ice (report)											X	1		
4. Determine the relationship of gliding between the metal surfaces and ice (report)											X	X	1	
5. To develop methods for the optimisation for the gliding surface with real track conditions						X	X		X		X	X	X	X
5.1. Develop a method for determining the slip under real track conditions, in comparison						X	X				X	1		

with laboratory equipment (report)														
5.2. Develop a method for surface modification of a larger metal sample									X		X	X		
5.3. Make a modification recommendation for the metal surface to improve gliding in track conditions (report)													X	1
6. Publications						1								1
7. Conference					1				1				1	
8. Science publications									1					
9. Seminars														1
10.Master's thesis	X	X	X	X	X	X	X	X	X		X	X	X	X
11. Patent results in Latvia														1
12. New methods for exploitation														1