Progress report
on the implementation of the TETRA standard communications network
within the Ministry of Internal Affairs
according to the Action Plan of the MIA on the implementation of the TETRA standard communications network
approved by the Order of MIA no. 401 as of December 29, 2017

No d / o	Action name	Sub-action name	Responsible subdivision	Implementation terms							Result indicators	Costs (thousand lei)	Source of financing	Achievements
				2017	2018		2019		2020					
				Sem II	Sem I	Sem II	Sem I	Sem II	Sem I	Sem II				
1	2	3	4	5							6	7	8	9
1.	**Designing the TETRA network**	**1.1** Evaluating and analysing the existing TETRA network, adjusting the Feasibility Study	ITS DMI of MIA	▓							- analysis report	900.00	Within the limits of the approved budget	**CARRIED OUT** On December 21, 2017 the Analysis and Adjustment Document of the Feasibility Study no. MD-170001-RF was received. The analysis of the existing TETRA network took place on 06.03.2018 finished with the evaluation report no. MD-MOI-1800004GD as of 29.03.2018 according to contract no. 273AP of the 06.12.2017
		1.2 Technical design of radio connections required for the interconnection of base stations (type of connection, equipment specifications, technical design)	ITS DMI of MIA		▓	▓					- detailed project			**ACHIEVED** It was carried out and handed over by Motorola Solutions, Upgrade Project and Design IP&DCN for the transport network. The document shall contain all the technical details of the data transmission network.
		1.3 Approving the candidate locations for the location of base stations	ITS GPI		▓	▓					- technical project			**ACHIEVED** In February-March 2018, the representatives of Motorola Solutions and ITS carried out audit visits to a number of candidate locations (communication towers) in order to install the communication equipments. These belong to both MIA nad national telecommunications operators. Following the audit were jointly selected and approved the 82 locations necessary for the installation of microwave and TETRA equipment. Technical projects were carried out for 42 locations that were approved by MIA, Motorola and Telecom operators in Moldova in order to install TETRA equipment for 2018. Technical projects were carried out for 20 locations that were approved by MIA, Motorola and Telecom operators in the RM for the installation of TETRA equipment for 2019.

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		1.4 Technical design for installation of base stations and MSO (electric, shelter, Tetra antennas)	ITS		■	■					- technical project			**ACHIEVED** Design of the new TETRA system has been executed. Project"TETRA system Design" no. MD-MOI-1800004GD as of 29.03.2018 according to contract no. 273AP of 06.12.2017
2.	**Designing the TETRA network**	**2.1** Entering into contract with the equipment supplier	DMI of MIA GPI	■							- contract concluded	170 000,00	Within the limits of the approved budget, other financial sources	**ACHIEVED** The MIA trilateral contract was concluded (beneficiary), GPI (payer) and the Company Motorola Solutions (Supplier), contract no. 273AP as of 06.12.2017. Under this contract, it is foreseen to build the TETRA turnkey network but also to update the existing network and to interconnect with the resulting TETRA infrastructure. The value of the contract is EUR 6 929 226,91 excluding VAT.
		2.2 Lease of technological premises for the location of TETRA network equipment	DMI of MIA ITS GPI		■	■	■	■			- contract concluded			**IN PROGRESS** In order to lease technological premises by the ITS, 24 technical expertise of Radiocommunication towers were carried out according to contract no. no. 42/18 of June 28, 2018 on the acquisition of the communication tower expertise services regarding the possibility / impossibility of placing the equipment. For 2019, 22 technical expertise of the communication towers of the telecommunications operators were carried out. ITS entered into lease contracts of technological premises with SE Radiocommunications, Moldcell, Orange and Moldtelecom for all locations where TETRA equipment was installed. For 2020, additional agreements will be concluded with National Telecommunications Operators for the new locations.
		2.3 Making radio coverage for serving district centers at portable terminal level*	ITS DMI of MIA			■	■	■			- min. 80% coverage for portable terminals			**IN PROGRESS** Under contract no. 273AP as of 06.12.2017 with the Company Motorola Solutions for the realization of radio coverage and operationalization of TETRA system in 2018 the following were realized: - delivered 23 Mts4 base stations; - delivered 12 Mts1 base stations with full set of accessories; - 26 radio links required to interconnect the 35 base stations were delivered; - 2 Control Sites have been installed and configured; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - upgrade to existing TETRA network at GPIF; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - SwMI equipment has been installed and put into operation in full configuration with 2 geo-redundant zones in MSO A and MSO B locations - migration of databases and 36 existing base stations into the new system was carried out; In 2019 the following were achieved: - delivered 16 MTS1 base stations with full set of accessories; - 14 radio links required to interconnect the 16 base stations were delivered; - 2 Control Sites have been installed and configured; - radio coverage of Chisinau International Airport carried out;

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														For the good functionality of the system the location of equipment from TETRA dispatch was reorganized; - In TETRA dispatcher were installed: dispatcher console, NMT console (Network Management Terminal), Gina AVL Console, Dl Console (Discret Listing), Replay Station Console. Radio coverage will be calculated after installation of equipment to be delivered in 2020.
		2.4 Making radio coverage for serving national roads at portable terminal level*	ITS								- min. 80% coverage for portable terminals			**IN PROGRESS** Under contract no. 273AP as of 06.12.2017 with the Company Motorola Solutions for the realization of radio coverage and operationalization of TETRA system in 2018 the following were realized: - delivered 23 Mts4 base stations; - delivered 12 Mts1 base stations with full set of accessories; - 26 radio links required to interconnect the 35 base stations were delivered; - 2 Control Sites have been installed and configured; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - upgrade to existing TETRA network at GPIF; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - SwMI equipment has been installed and put into operation in full configuration with 2 geo-redundant zones in MSO A and MSO B locations - migration of databases and 36 existing base stations into the new system was carried out; In 2019 the following were achieved: - delivered 16 MTS1 base stations with full set of accessories; - 14 radio links required to interconnect the 16 base stations were delivered; - 2 Control Sites have been installed and configured; - radio coverage of Chisinau International Airport carried out; For the good functionality of the system the location of equipment from TETRA dispatch was reorganized; - In TETRA dispatcher were installed: dispatcher console, NMT console (Network Management Terminal), Gina AVL Console, Dl Console (Discret Listing), Replay Station Console. Radio coverage will be calculated after installation of equipment to be delivered in 2020.
		2.5 Making radio coverage for serving Police Inspectorates within district centers at Mobile terminal level*	ITS								- 80% coverage for mobile terminals in PI			**IN PROGRESS** Under contract no. 273AP as of 06.12.2017 with the Company Motorola Solutions for the realization of radio coverage and operationalization of TETRA system in 2018 the following were realized: - delivered 23 Mts4 base stations; - delivered 12 Mts1 base stations with full set of accessories; - 26 radio links required to interconnect the 35 base stations were delivered;

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							▓	▓	▓	▓				- 2 Control Sites have been installed and configured; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - upgrade to existing TETRA network at GPIF; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - SwMI equipment has been installed and put into operation in full configuration with 2 geo-redundant zones in MSO A and MSO B locations - migration of databases and 36 existing base stations into the new system was carried out; In 2019 the following were achieved: - delivered 16 MTS1 base stations with full set of accessories; - 14 radio links required to interconnect the 16 base stations were delivered; - 2 Control Sites have been installed and configured; - radio coverage of Chisinau International Airport carried out; For the good functionality of the system the location of equipment from TETRA dispatch was reorganized; - In TETRA dispatcher were installed: dispatcher console, NMT console (Network Management Terminal), Gina AVL Console, Dl Console (Discret Listing), Replay Station Console. Radio coverage will be calculated after installation of equipment to be delivered in 2020.
		2.6. MSO installation and configuration. Interconnection with the existing MSO of GPIF	ITS GPIF			▓	▓	▓			- full integration - functional system			**ACHIEVED** - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - upgrade to existing TETRA network at GPIF; - has been delivered and operationalized TETRA management and switching center (SwMI) hardware and licenses (primary Zone); - SwMI equipment has been installed and put into operation in full configuration with 2 geo-redundant zones in MSO A and MSO B locations - migration of databases and 36 existing base stations into the new system was carried out; - all core stations under GPIF management have been reconfigured and updated and passed from E1 to Ethernet.
		2.7 Equipment reception, TETRA network functionality testing	DMI of MIA ITS GPI GPIF						▓	▓	- working group set up - reception and testing documents			

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3.	**Improving staff capacities in the administration, maintenance and use of the TETRA network**	**3.1** Defining training needs	ITS GPI		▓						- courses identified			**ACHIEVED** Training courses for administration and maintenance of the TETRA network have been identified as necessary; Radio network configuration and management courses have been identified.
		3.2 Taking over good practices regarding the administration and use of the TETRA system	ITS			▓	▓				- study visits carried out	1 500,00	Within the limits of the approved budget	**ACHIEVED** In accordance with the provisions of the Order of MIA no. 18/1417 of 19.11.2018 ,, Regarding the participation of MIA representatives in the working visit on taking over the experience in the field of development of the radio TETRA communication network standard ", during the period of 20-22 November 2018, the delegation of the Ministry of Internal Affairs went to the city. Bucharest, Romania, in the following composition: - Turcanu Constantin, deputy head of the Information Technologies Service of the Ministry of Internal Affairs; - Putere Alexandru, head of the Radiocommunications Division of ITS of the Ministry of Interior Affair; - Burdila Ion, senior specialist of the Operational Radiocommunication Systems Division of DR of ITS of MIA. - Renita Ion, senior specialist of the Representation and Challenge Service of the Legal Division of the ITS of MIA. - Valeriu Micleusanu, senior specialist of the MIA Crime Prevention and Combating Policy Division. 　　During the working visit, the delegation met with the management of Romania's special telecommunications service 　　Thus, during the meetings held with both the management of the service and with the delegates of the institution per areas, questions were addressed regarding the legal framework that underlies the TETRA network in Romania, as well as the legislative – normative framework, which is to be developed and will underpin the functionality of the TETRA network in the Republic of Moldova. There were also discussed issues related to the drafting of standard operating procedures relating to the sharing of resources, fleetmaping management and the system management , the procedures for the certification of all categories of equipment and terminals, procedures-create/fill-in of the forms on the needs required by the user to purchase terminals, as well as any other topics that serve as the basis for the development and implementation of the TETRA standard radio communication networks.
		3.3 Performing user training sessions	ITS GPI			▓	▓	▓	▓		- training sessions conducted			**In progress:** - during the period of 26 to 29 March 2018, a training session was conducted for the programming and use of TETRA terminals, where the responsible engineers from the STI, INP, GPIF, IGSU participated, who, in turn, train the future users of terminals upon their delivery. During the following years, along with equipping employees with radio terminals will be held training

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														sessions for users. - The instruction for the use of radio terminals has been developed, which will be approved once with the Regulation on network operation. **ACHIEVED** The Ericsson mini-LINK Indoor Units M17 maintenance and TroubleShooting Course was conducted between 10-14 September 2018. The course was attended by 8 ITS employees. All employees have been certified by Ericsson. According to the Order of the MIA no.18/1355 as of 05.11.2018, on the participation of MIA representatives in training courses on improving staff capacities in the administration, maintenance and use of the TETRA network, by employees of MIA:
		3.4 Conducting training sessions for technical and administration staff	ITS GPI								- training sessions, min. 10 employees			- Erhan Mihail, deputy head of DSMT of DGMO of GPIF of MIA, chief inspector; (delegation period 25.11-13.12) - Rusu Marcel, Senior Specialist of TETRA Administration Section of DSMT of DGMO, inspector; (delegation period 28.11-13.12) - Putere Alexandru, head of the Radiocommunications Division of the MIA, Commissioner; (delegation period 25.11-13.12) - Mihaiescu Denis, Head of the Operational Radiocommunications Systems Division of DR of ITS of MIA, chief commissioner; (delegation period 25.11-13.12) - Spanu Alexandru, head of TETRA dispatching service of DR of the ITA of MIA, senior inspector; (delegation period 25.11-13.12) - Elas Valeriu, head of ICT Infrastructure Administration Department, Information Technology Services Division, ITS of MIA; (delegation period 25.11-06.12) - Burdila Ion, senior specialist of the Operational Radiocommunication Systems Division of DR of the ITS of MIA, senior inspector; (delegation period 28.11-13.12) - Manea Mihail, Specialist of the Operational Radiocommunications Systems Division of DR of ITS of MIA, inspector; (delegation period 28.11-13.12) - Mitev Constantin, head of the TETRA Digital Systems Division of DR of ITS of MIA, inspector; (delegation period 04-13. 12) - Gutu Mihail , senior specialist of the TETRA Digital Systems Division of DR of ITS of MIA, senior inspector; (delegation period 25.11-13. 12) - Litvinenco Nocolae, senior engineer of TETRA Digital Systems Department of DR of ITS (delegation period 25-29. 11) - Gorobet Alexandru, Specialist of the Operational

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														Radiocommunications Systems Division of DR of ITS of MIA, inspector; (delegation period 25.11-13.12) - Ghenadie Childescu, senior specialist of the Technical and Telecommunications Service of the SDAL of the INP of the GPI of the MIA. (delegation period 25-29. 11) - Maluda Alexandru, MIAn specialist of the Transmission Service of BPDs " Fulger" of the GPI of MIA, inspector; (delegation period 25-29. 11) the service shift for participation in training courses was performed. The training courses were held in Germany, Berlin town, between 26.11-12.12.2018. The course was structured in 4 different modules: 1. TETRA radio terminal programming-3 days; 2. Configuration and administration R9. 0. 1 X-Core-3 days; 3. maintenance and Troubleshooting of dispatcher consoles R9. 0MCC7500 - 3 days; 4. Installation, maintenance, Troubleshooting and Configuration of Mts4 and MTS2 base stations; Within each module, 10 engineers were trained. The cost of the course is covered under contract no. 273AP of 06.12.2017.
4.	**Equipping employees with communication equipment**		ITS GPI								- procured terminals - spread terminals	75 000,00	Within the limits of the approved budget, other financial sources	**In progress:** - Under Contract no. 273AP as of 06.12.2017 were delivered, scheduled and assigned 190 portable radio terminals MTP 3500 in TETRA standard and 103 mobile radio terminals MTM 5400 in TETRA standard for INP of GPI , DTC, BPDs Fulger of GPI and PD of Chisinau municipality of GPI later they were issued with receipt-delivery documents. - Under the same contract, 26 portable terminals camouflaged of the model ST7000 were delivered. Due to the lack of budget, the equipment of employees with radio terminals is carried out from other projects. In 2019 were procured by GPI around -135 mobile radio terminals -144 portable radio terminals -17 stationary radio terminals

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5.	**Institution and operationalization of the TETRA network Management Centre**	**5.1** Defining the operational model, location and activities	ITS		▓	▓					- location identified	400.00	Within the limits of the approved budget	**ACHIEVED** The location of the network management center has been identified
		5.2 Elaborating the organisational structure	DMI of MIA ITS			▓	▓				- approved structure			**In progress:** Proposals on the organisational structure have been submitted. The opinion of the reform centre is now expected for its approval. The draft law on the organization and functioning of the Information Technology Service of the Ministry of Internal Affairs has been completed and would be sent repeatedly to the State Chancellery for approval. In connection with the no-confidence motion put forward on 12.11.2019 in the framework of the session of the Moldovan Parliament against the Government Maia Sandu, as a result the dismissal of the Government, the draft by-law on the organization and functioning of the Information Technology Service may not be promoted to the approval up to the taking of the decision referred to the project given by the Government of Chicu.
		5.3 Ensuring technical and working conditions	ITS			▓	▓	▓			- workspace fitted-out			**ACHIEVED** - In TETRA dispatcher were installed: dispatcher console, NMT console (Network Management Terminal), Gina AVL Console, DL Console (Discret Listing), Replay Station Console for its operationalization.
		5.4 Installation, configuration and interconnection of equipment	ITS				▓	▓	▓	▓	- full integration - functional system			**ACHIEVED** All equipment has been installed and configured within the GPIF and TETRA dispatch of the ITS. Thus, at the moment all TETRA network management can be carried out from these two locations.
6.	**Elaborating the institutional regulatory framework of the TETRA network**	**6.1** Defining the operational model (tasks, form of organisation, functions) for the responsible structures	DMI of MIA ITS GPI			▓	▓	▓			- operational model defined	-		**In progress:** It has been approved the Order of the MIA no. 326 as of 18.10.2018 relating to the designation of the Information Technology Service of the MIA, the institution responsible for the implementation of the TETRA standard radiocommunication System . The ITS structure includes the Radiocommunications Directorate in which composition there is the TETRA Digital Systems Division and the TETRA Dispatching Service, the activity of which, according to the employee job descriptions, is the administration and development of the TETRA network at the Ministry level. At the moment, according to the Draft Resolution on the organization and functioning of the Information Technology Service of the Ministry of Internal Affairs, it is expected the creation of the Department of special communications of the Directorate-general for information technologies and communications, the

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														staff composed of 7 public officers with special status, that will be held responsible for TETRA.
		6.2 Development and Approval of the TETRA network functioning Regulation	ITS GPI DMI of MIA								- Approved Regulation			
		6.3 Development of terminal operating instructions (operating mode, operating instructions, instructions in case of loss, damage, etc.))	ITS								- Approved instructions			
									TOTAL:			247 800.00		

* Priority development areas will be established based on the delivery schedule and operational needs of the police.